OSP Rodless Pneumatic Linear Drive Systems

HOERBIGER

ORIGA

OSP
ORIGA
SYSTEM
PLUS
PNEUMATIC

Attention!

All dimensions are in European-Standard.
Please convert all in US-Standard.

Conversion Table

Multiply	By	To Obtain
Millimeters	.03937	Inches
Newtons	.2248	Lbs.(F)
Bar	14.5	PSI
Newton-Meters	8.8512	In-Lbs
Kilograms	2.205	Lbs.
Inches	25.4	Millimeters
Lbs.(F)	4.448	Newtons
PSI	0.06895	Bar
In-Lbs	.113	Newtons-Meters
Lbs.	.45359	Kilograms

HOERBIGER ORIGA

HOERBIGER-ORIGA Corporation • 100 West Lake Drive • IL-Glendale Heights, Illinois •
Tel. 630-871-8300 • Fax 630-871-1515 • e-mail: usmarket@hoerbiger-origa.com
Internet http://www.hoerbigeroriga.com

Contents
Linear Drives

OSP
ORIGA
SYSTEM
PLUS

HOERBIGER
ORIGA

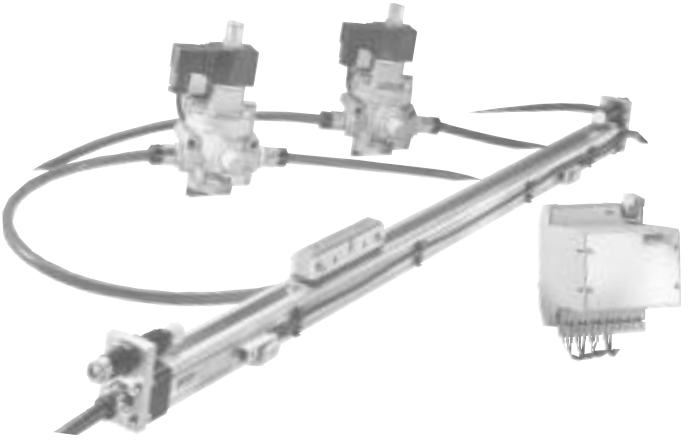
HOERBIGER-ORIGA Corporation • 100 West Lake Drive • IL-Glendale Heights, Illinois •
Tel. 630-871-8300 • Fax 630-871-1515 • e-mail: usmarket@hoerbiger-origa.com
Internet http://www.hoerbigeroriga.com

Custom Solutions with

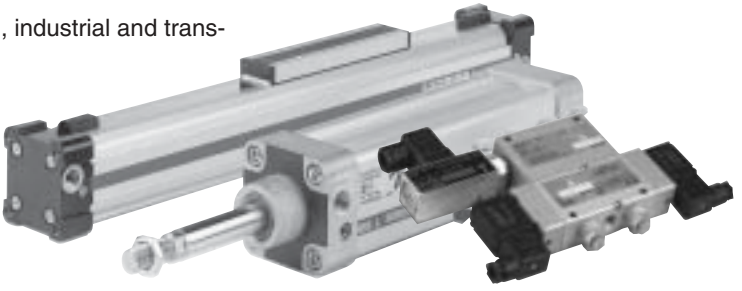
OSP
ORIGA
SYSTEM
PLUS

ORIGA SYSTEM PLUS is a basis for providing custom solutions for particular applications and end user requirements.

Clean Room Pneumatic Cylinders
Especially adapted for use in clean room environments, the Clean Room series incorporates wear resistant components and an in-built vacuum system which practically eliminates particle emissions from the actuator.



Door Drive Systems
Pneumatic and electric door drive systems for commercial, industrial and transportation applications. Features may include:
- Extended end of stroke cushioning
- Obstruction detection and auto-reverse capability
- Specialist control requirements
- Electronic interface



Bi-Parting Actuators
Unique Electric Belt Drive systems providing bi-parting actuation from a single axis.
For applications in transportation systems, materials handling, machine guards and automatic door operation.

ONE CONCEPT – THREE DRIVE OPTIONS

Basic Linear Drive – Standard Version ● Series OSP-P	Page 13	
Air Connection on the End-face ● Series OSP-P	Page 16	
Single End Porting ● Series OSP-P	Page 17	
Clevis Mounting ● Series OSP-P	Page 51	
Mid-Section Support ● Series OSP-P	Page 53	
Inversion Mounting ● Series OSP-P	Page 57	
Linear Guides – SLIDELINE ● Series OSP-P	Page 23	
Linear Guides – POWERSLIDE ● Series OSP-P	Page 25	
Linear Guides – GUIDELINE ● Series OSP-P	Page 29	
Linear Guides – PROLINE ● Series OSP-P ● Series OSP-E Belt * ● Series OSP-E Screw *	Page 33	
Brakes ● Active-Brakes ● Passive-Brakes	Page 35	
Proximity Sensors ● Series OSP-P	Page 62	
SENSOFLEX – Measuring Systems ● Series SFI ● Series SFA	Page 67	

Modular Components - Overview

Linear Drives	OSP-P10 ([1] ([4	OSP-P16 ([1	OSP-P25 ([1	OSP-P32 ([1	OSP-P40 ([1
Theoretical force / Effective force at 6bar [N]	47 / 32	120 / 78	295 / 250	483 / 420	754 / 640
Velocity v [m/s]	> 0,005	> 0,005	> 0,005	> 0,005	> 0,005
Magnetic piston (three sides)	×	❑	❑	❑	❑
Lubrication - Prelubricated	❑	❑	❑	❑	❑
Multiple air ports (4 x 90°)	×	❑	❑	❑	❑
Both Air Connections at End-face	×	❍	❍	❍	❍
Air Connection on the End-face	×	❍	❍	❍	❍
Cushioning	❑	❑	❑	❑	❑
Cushion length [mm]	2,50	11	17	20	27
Stroke length [mm]	1 - 6000	1 - 6000	1 - 6000	1 - 6000	1 - 6000
Pressure range [bar]	0,0 - 8,0	0,0 - 8,0	0,0 - 8,0	0,0 - 8,0	0,0 - 8,0
Temperature range [°C] ❊	-10 – + 80 °	-10 – + 80	-10 – + 80	-10 – + 80	-10 – + 80
Viton / chemical resistance	❍	❍	❍	❍	❍
Stainless steel parts	❍	❍	❍	❍	❍
Clevis mounting	❍	❍	❍	❍	❍
Slow speed lubrication	❍	❍	❍	❍	❍
Duplex Connection / Multiplex Connection	×	on request	❍	❍	❍
Tandem piston	❍	❍	❍	❍	❍
Self Guidance					
L [N]	20	120	300	450	750
M [Nm]	1	4	15	30	60
Ms [Nm]	0,2	0,45	1,5	3	6
Mv [Nm]	0,3	0,5	3	5	8
Slideline					
L [N]	×	325	675	925	1500
M [Nm)]	×	11	34	60	110
Ms [Nm]	×	6	14	29	50
Mv [Nm]	×	11	34	60	110
Proline					
L [N]	×	×	1210	1460	2600
M [Nm)]	×	×	55	91	198
Ms [Nm]	×	×	23	36	72
Mv [Nm]	×	×	55	91	198
Powerslide					
L [N]	×	1400	1400 - 3000	1400 - 3000	3000
M [Nm]	×	45	63 - 175	70 - 175	175 - 250
Ms [Nm]	×	14	14 - 65	20 - 65	65 - 90
Mv [Nm]	×	45	63 - 175	70 - 175	175 - 250
Guideline					
L [N]	×	×	1650 - 2500	1650 - 2500	4400 - 8000
M [Nm]	×	×	115	145	440
Ms [Nm]	×	×	75	90	330
Mv [Nm]	×	×	90	115	310
Guideline with shock absorber for cushioning	×	×	❍	❍	❍
Active-Brake					
Braking force at 6 bar (Brake surface dry) [N]	×	×	350	590	900
Slideline SL / Proline PL with Brakes					
Aktive-Brake			**SL/PL**	**SL/PL**	**SL/PL**
Braking force at 6 bar (Brake surface dry) [N]	×	×	325/on request	545/on request	835/on request
Passive-Brake Multibrake			**SL/PL**	**SL/PL**	**SL/PL**
Brake force (no pressure, Brake surface dry) [N]	×	×	470/315	790/490	1200/715
Accessories					
Proximity Sensors					
RS (closer, opener) ; ES (PNP, NPN)	❍	❍	❍	❍	❍
Displacement measuring systems					
SFI - incremental	×	×	❍	❍	❍
SFA - absolute	×	×	❍	❍	×
Integrated valves 3/2 WV NO VOE	×	×	❍	❍	❍
Motor package (stepper/servo)	×	×	×	×	×
Mountings					
End Cap Mounting / Mid-Section support	❍	❍	❍	❍	❍
Inversion mounting	×	❍	❍	❍	❍
Shock absorber for intermediate position	×	×	on request	on request	on request
Adaptor Profile / T-Nut Profile	×	❍	❍	❍	❍
Special cylinders					
Cleanroom - class 10	×	on request	on request	on request	×
High-speed up to 30 m/s	×	on request	on request	on request	×

❑ = Standard version
❍ = Option
× = not applicable
❊ = other Temperature ranges on request

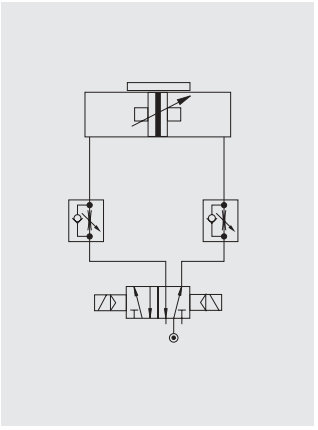
([1 = Rodless Pneumatic Cylinder([3 = Linear Actuator with ball screw
([2 = Linear Actuator with toothed belt
([3 = Linear Actuator with ball screw
([4 = Rodless Pneumatic Cylinder according to Series P 210 other Temperature ranges on request

Modular Components - Overview

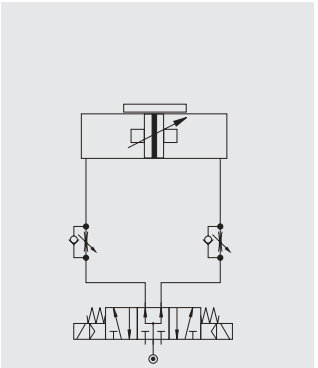
	OSP-P50 (1	OSP-P63 (1	OSP-P80 (1	OSP-E25-B (2	OSP-E32-B (2	OSP-E50-B (2	OSP-E25-S (3	OSP-E32-S (3	OSP-E50-S (3
	1178 / 1000	1870 / 1550	3010 / 2600	50	100 - 150	300 - 425	250	600	1500
	> 0,005	> 0,005	> 0,005	0,05 - 3,0	0,05 - 5,0	0,05 - 5,0	0,01 - 0,25	0,01 - 0,5	0,01 - 1,25
	❑	❑	❑	❑	❑	❑	❑	❑	❑
	❑	❑	❑	❑	❑	❑	❑	❑	❑
	❑	❑	❑	×	×	×	×	×	×
	❍	❍	❍	×	×	×	×	×	×
	❍	❍	❍	×	×	×	×	×	×
	❑	❑	❑	×	×	×	×	×	×
	30	32	39	×	×	×	×	×	×
	1 - 6000	1 - 6000	1 - 6000	100 - 3000	100 - 5000	100 - 5000	100 - 1300	100 - 3200	100 - 3200
	0,0 - 8,0	0,0 - 8,0	0,0 - 8,0	×	×	×	×	×	×
	-10 – + 80	-10 – + 80	-10 – + 80	- 30 – + 80	- 30 – + 80	- 30 – + 80	- 20 – + 80	- 20 – + 80	- 20 – + 80
	❍	❍	❍	×	×	×	×	×	×
	❍	❍	❍	×	×	×	×	×	×
	❍	❍	❍	❍	❍	❍	❍	❍	❍
	❍	❍	❍	×	×	×	×	×	×
	❍	on request	on request	×	×	×	×	×	×
	❍	❍	❍	❍	❍	❍	❍	❍	❍
	1200	1650	2400	160	300	850	500	1200	3000
	115	200	360	12	25	80	12	25	80
	10	12	24	2	8	16	2	8	16
	15	24	48	8	16	32	8	16	3
	2000	2500	on request	×	×	×	675	925	2000
	180	260	on request	×	×	×	34	60	180
	77	120	on request	×	×	×	14	29	77
	180	260	on request	×	×	×	34	60	180
	3890	×	×	1210	1460	3890	1210	1460	3890
	313	×	×	55	91	313	55	91	313
	139	×	×	23	36	139	23	36	139
	313	×	×	55	91	313	55	91	313
	3000 - 4000	×	×	1400 - 3000	1400 - 3000	3000 - 4000	1400 - 3000	1400 - 3000	3000 - 4000
	250 - 350	×	×	63 - 175	70 - 175	250 - 350	63 - 175	70 - 175	250 - 350
	90 - 140	×	×	14 - 65	20 - 65	90 - 140	14 - 65	20 - 65	90 - 140
	250 - 350	×	×	63 - 175	70 - 175	250 - 350	63 - 175	70 - 175	250 - 350
	4400 - 8000	×	×	1650 - 2500	1650 - 2500	4400 - 8000	1650 - 2500	1650 - 2500	4400 - 8000
	500	×	×	115	145	500	115	145	500
	375	×	×	75	90	375	75	90	375
	355	×	×	90	115	355	90	115	355
	❍	×	×	❍	❍	❍	❍	❍	❍
	1400	2170	4000	×	×	×	×	×	×
	SL/PL								
	1200/on request	×	×	×	×	×	×	×	×
	SL/PL	**SL**	**SL**						
	1870/1100	2900	2900	×	×	×	×	×	×
	❍	❍	❍	❍	❍	❍	❍	❍	❍
	❍	❍	❍	×	×	×	×	×	×
	×	×	×	×	×	×	×	×	×
	❍	on request	on request	×	×	×	×	×	×
	×	×	×	❍	❍	❍	❍	❍	❍
	❍	❍	❍	❍	❍	❍	❍	❍	❍
	❍	❍	❍	❍	❍	❍	❍	❍	❍
	on request	×	×	×	×	×	×	×	×
	❍	❍	❍	❍	❍	❍	❍	❍	❍
	×	×	×	×	×	×	×	×	×
	×	×	×	×	×	×	×	×	×

Examples

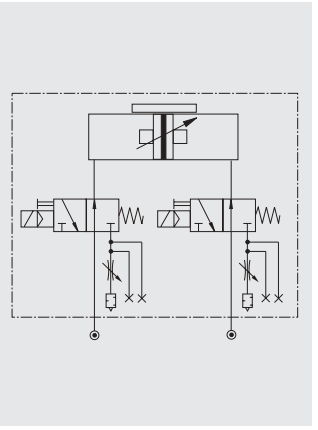
CONTROL EXAMPLES FOR OSP-P



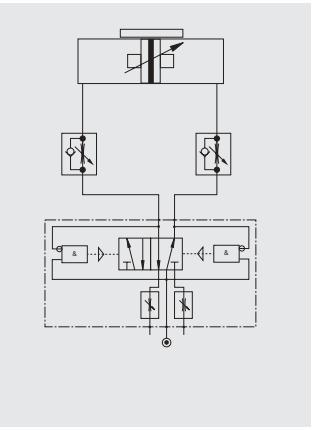
Control for an end-of-stroke application A 5/2-way valve controls the cylinder. The speed can be controlled separately for both directions.



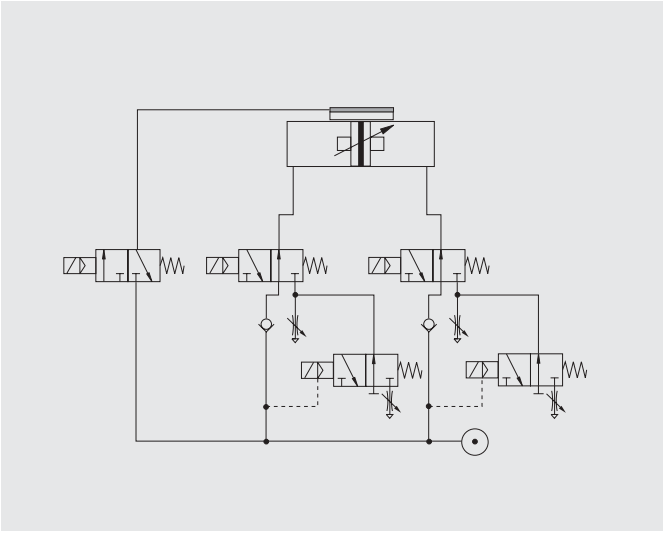
If a 5/3-way valve (with pressurized middle position) is used to control the cylinder, it is possible to stop at intermediate positions.



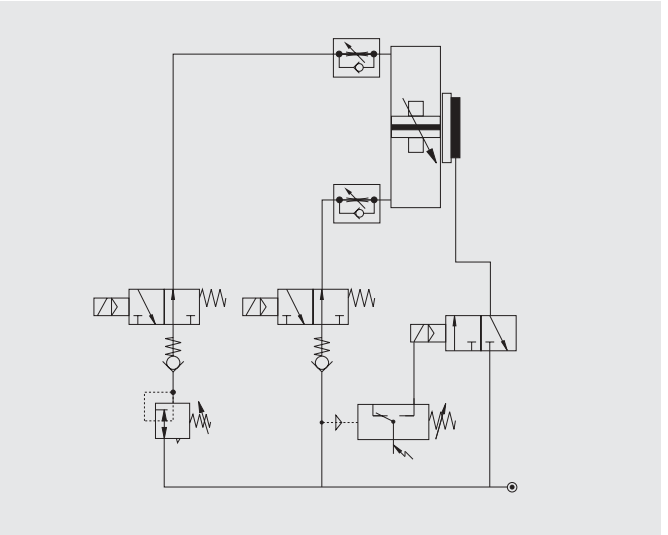
The optional integrated VOE Valves offer optimal control, and allow accurate postioning of intermediate positions with the lowest possible equal speeds.



HOERBIGER-ORIGA's pneumatic oscillating valve allows automatic reciprocating motion, with full control of the oscillating motion's speed in both directions.
This solution does not require any sensors or other pneumatic accessories.



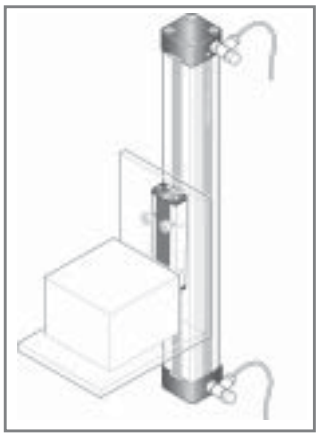
Fast/Slow speed cycle control with pneumatic brake for accurate positioning at high velocities. Additional 3/2-way valves with adjustable throttle valves at the exhaust of the standard directional control valves for two displacement speeds in each direction of the piston's travel. The valve controlling the brake is activated after the slow speed cycle is activated



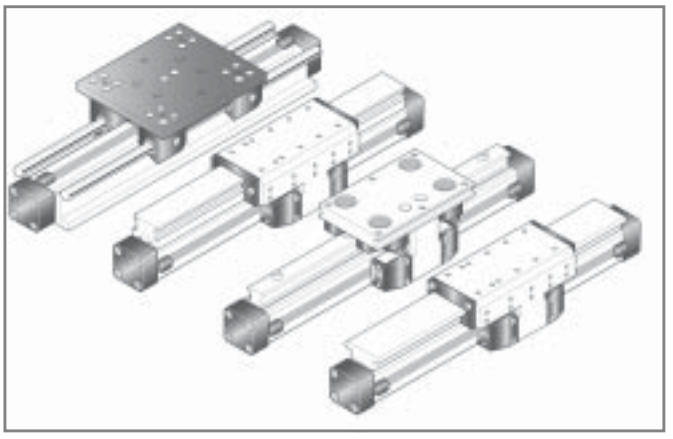
The combination of an OSP cylinder with the passive MULTIBRAKE as shown here, allows accurate positioning and safety in case of loss of pneumatic air pressure.

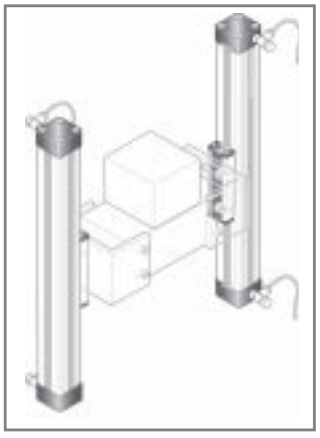
OSP-P APPLICATION EXAMPLES

ORIGA SYSTEM PLUS – rodless linear drives offer maximal flexibility for any application.



The high load capacity of the piston can cope with high bending moments without additional guides.



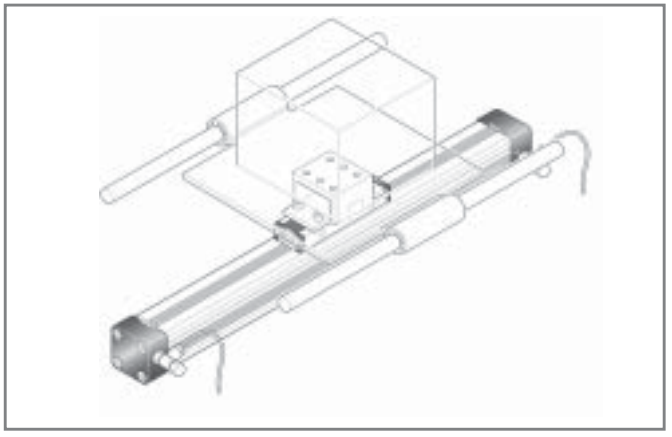


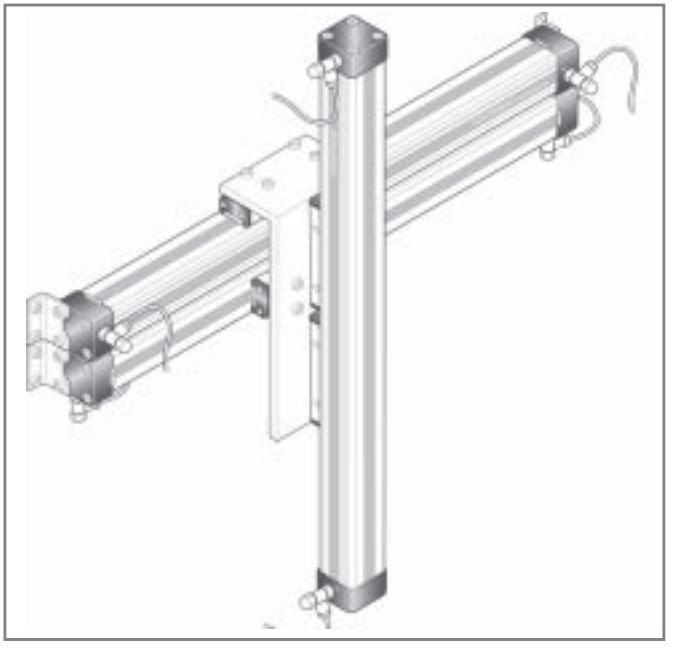
The mechanical design of the OSP-P allows synchronized movement of two cylinders.

Integrated guides offer optimal guidance for applications requiring high performance, easy assembly and maintenance free operation.

Optimal system performance by combining multi-axis cylinder combinations.

When using external guides, the clevis mounting is used to compensate for deviations in parallelism.





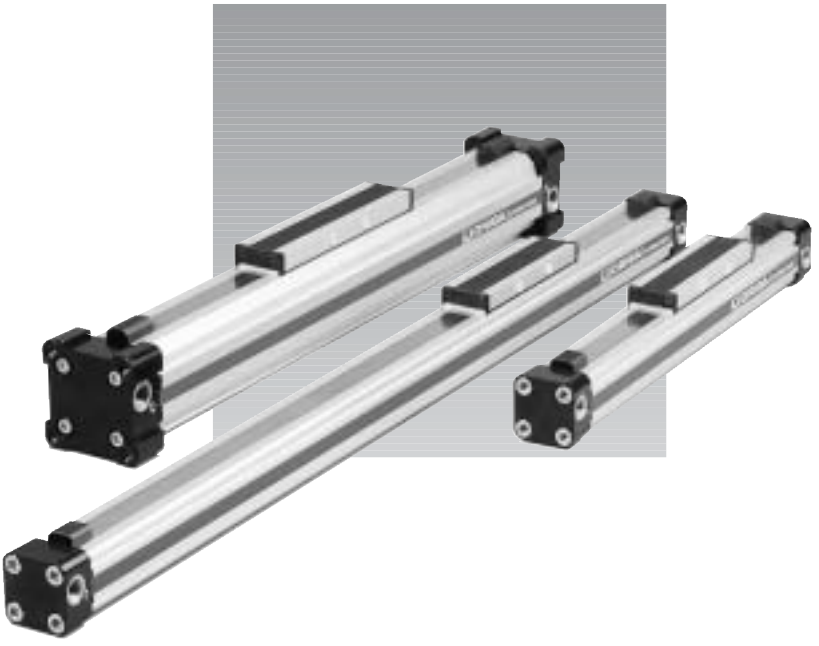
For further information and assembly instructions, please contact your local HOERBIGER-ORIGA dealer.

PNEUMATIC
GROUP

OSP-P

ORIGA SYSTEM PLUS

RODLESS
PNEUMATIC CYLINDERS



HOERBIGER
ORIGA

ORIGA SYSTEM PLUS – INNOVATION FROM A PROVEN DESIGN

A completely new generation of linear drives which can be simply and neatly integrated into any machine layout.

A NEW MODULAR LINEAR DRIVE SYSTEM

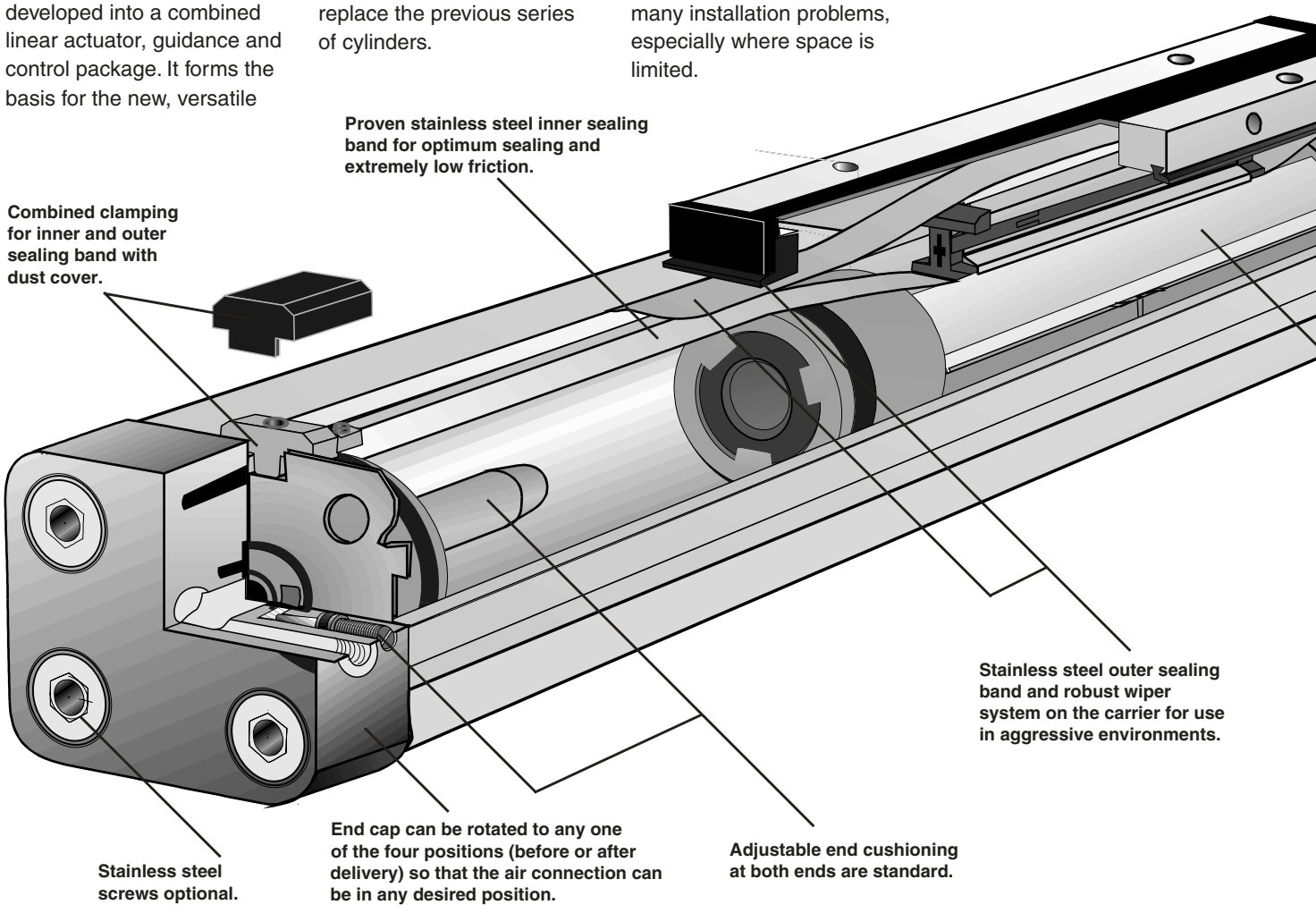
With this second generation linear drive HOERBIGER-ORIGA offers design engineers complete flexibility. The well known ORIGA cylinder has been further developed into a combined linear actuator, guidance and control package. It forms the basis for the new, versatile ORIGA SYSTEM PLUS linear drive system.

All additional functions are designed into modular system components which replace the previous series of cylinders.

MOUNTING RAILS ON 3 SIDES

Mounting rails on 3 sides of the cylinder enable modular components such as linear guides, brakes, valves, sensors etc. to be fitted to the cylinder itself. This solves many installation problems, especially where space is limited.

The modular system concept forms an ideal basis for additional customer-specific functions.

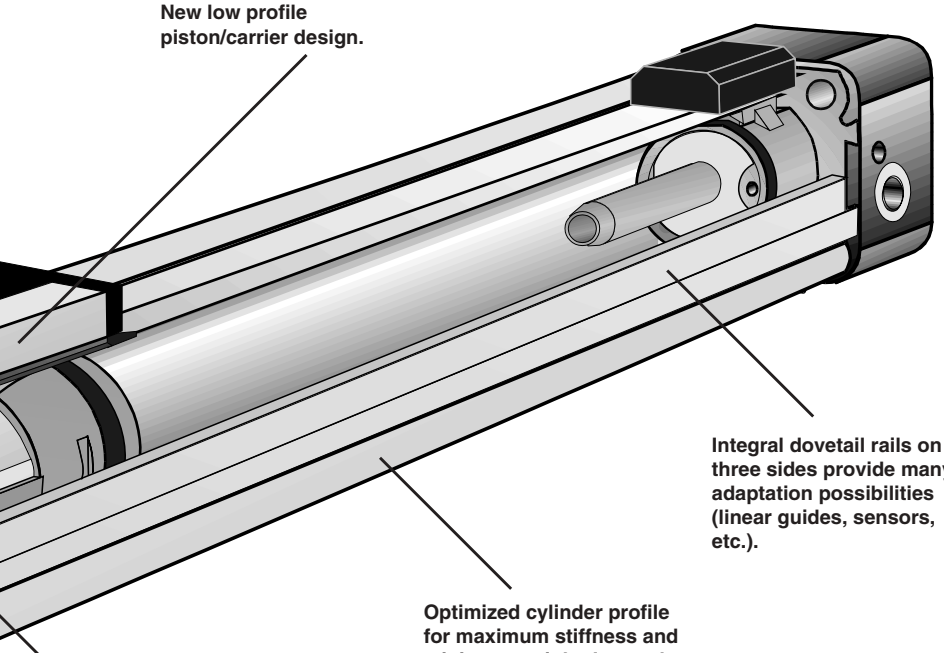


PNEUMATIC LINEAR ACTUATOR WITH NEW MODULAR SYSTEM

PROLINE
The compact aluminium roller guide for high loads and velocities.

INTEGRATED VOE VALVES
The complete compact solution for optimal cylinder control.

New low profile piston/carrier design.

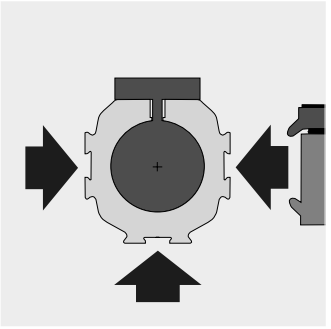


Integral dovetail rails on three sides provide many adaptation possibilities (linear guides, sensors, etc.).

Optimized cylinder profile for maximum stiffness and minimum weight. Integral air passages enable both air connections to be positioned at one end, if desired.

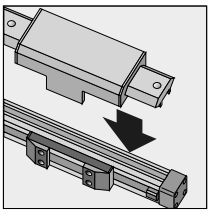
Magnetic piston as standard - for contactless position sensing on three sides of the cylinder.

Install the OSP-P System to simplify design work! The files are compatible with all popular CAD systems and package hardware.

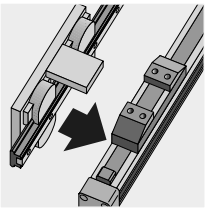


Modular system components are simply clamped on.

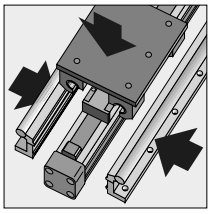
SLIDELINE
Combination with linear guides provides for heavier loads.



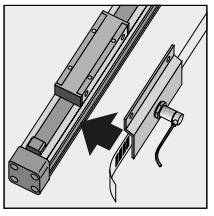
POWERSLIDE
Roller bearing precision guidance for smooth travel and high dynamic or static loads.



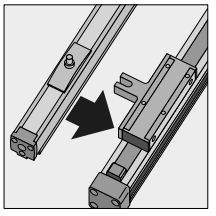
GUIDELINE
linear guides for heavy duty applications.



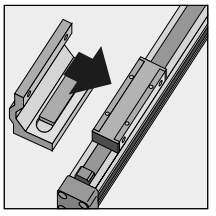
SENSOFLEX SFI
incremental measuring system with 1mm resolution.



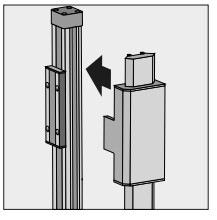
SENSOFLEX SFA
analogue measuring system. Simple and robust for high accuracy applications.



Active pneumatic brake for secure, positive stopping at any position.



Passive pneumatic brake reacts automatically to pressure failure.



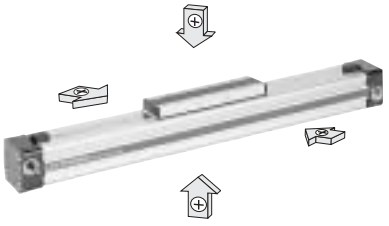
OPTIONS AND ACCESSORIES FOR SYSTEM VERSATILITY

SERIES OSP-P

STANDARD VERSIONS OSP-P16 to P80

Page 13

Standard Carrier with integral guidance. End cap can be rotated 4x90° to position air connection on any side.
Magnetic piston as standard.
Dovetail profile for mounting of accessories and the cylinder itself.



BASIC CYLINDER OPTIONS

STAINLESS VERSION

For use in constantly damp or wet environments. All screws are A2 quality stainless steel (material no. 1.4301 / 1.4303).

SLOW SPEED OPTIONS

Specially formulated grease lubrication facilitates slow, smooth and uniform piston travel in the speed range from 0.005 to 0.2 m/s. Minimum achievable speeds are dependent on several factors. Please consult our technical department.
Slow speed lubrication in combination with Viton® on demand. Oil free operation preferred.

VITON® VERSION

For use in an environment with high temperatures or in chemically aggressive areas.
All seals are made of Viton®.
Sealing bands: Stainless steel

CORROSION RESISTANCE COATING

FDA Approved Xylan® Coating

Good for food applications, caustic washdown, salt spray, dionized water and chemical resistance.

END-FACE AIR CONNECTION

Page 16

To solve special installation problems.

BOTH AIR CONNECTIONS AT ONE END

Page 17

For simplified tubing connections and space saving.

INTEGRATED VOE VALVES

Page 18

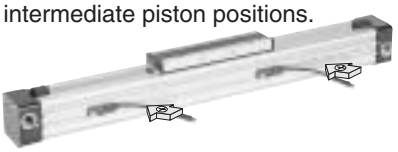
The complete compact solution for optimal cylinder control.

ACCESSORIES

PROXIMITY SENSORS TYPE RS AND ES

Page 62

For electrical sensing of end and intermediate piston positions.

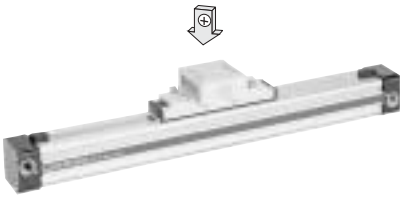


MOUNTINGS FOR OSP-P16 to P80

CLEVIS MOUNTING

Page 51

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



END CAP MOUNTING

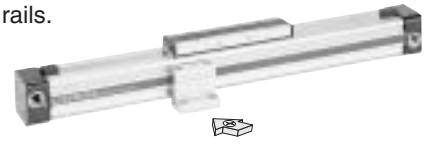
Page 52

For end-mounting of the cylinder.

MID-SECTION SUPPORT

Page 53

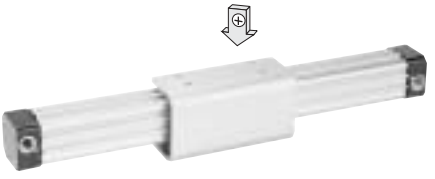
For supporting long cylinders or mounting the cylinder by its dovetail rails.



INVERSION MOUNTING

Page 57

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



Rodless Pneumatic Cylinder

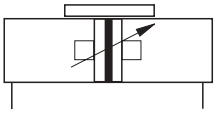
ø 16-80 mm

OSP
ORIGA SYSTEM PLUS

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

Special Versions:
- Stainless steel screws
- Slow speed lubrication
- Viton seals
- Both air connections on one end
- Air connection on the end-face
- Integrated Valves

Series OSP-P..



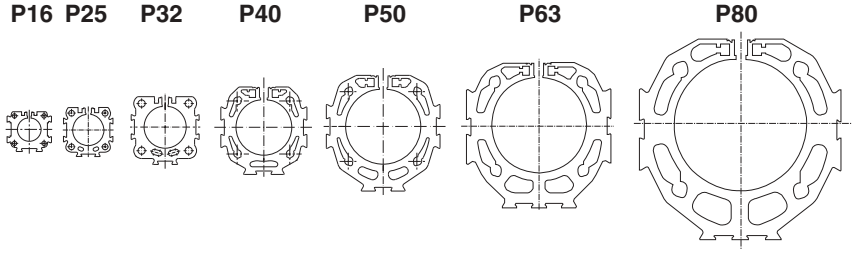
- End cap can be rotated 4 x 90° to position air connection as desired
- Free choice of stroke length up to 6000 mm (longer strokes on request)

Characteristics according to VDI 3292			Pressures quoted as gauge pressure
Characteristics	Symbol	Unit	Description
General Features			
Type			Rodless cylinder
Series			OSP-P
System			Double-acting, with cushioning, position sensing capability
Mounting			See drawings
Air Connection			Threaded
Ambient temperature range	ϑ_{min} ϑ_{max}	°C °C	-10 +80 — Other temperature ranges on request
Weight (mass)		kg	See table below
Installation			In any position
Medium			Filtered, unlubricated compressed air (other media on request)
Lubrication			Permanent grease lubrication (additional oil mist lubrication not required) Option: special slow speed grease
Material — Cylinder Profile			Anodized aluminium
Material — Carrier (piston)			Anodized aluminium
Material — End caps			Aluminium, lacquered
Material — Sealing bands			Stainless steel
Material — Seals			NBR (Option: Viton®)
Material — Screws			Galvanized steel Option: stainless steel
Material — Dust covers, wipers			Plastic
Max. operating pressure	p_{max}	bar	8

Weight (mass) kg

Cylinder series (Basic cylinder)	Weight (Mass) kg At 0 mm stroke	 per 100 mm stroke
OSP-P16	0.22	0.1
OSP-P25	0.65	0.197
OSP-P32	1.44	0.354
OSP-P40	1.95	0.415
OSP-P50	3.53	0.566
OSP-P63	6.41	0.925
OSP-P80	12.46	1.262

Size Comparison

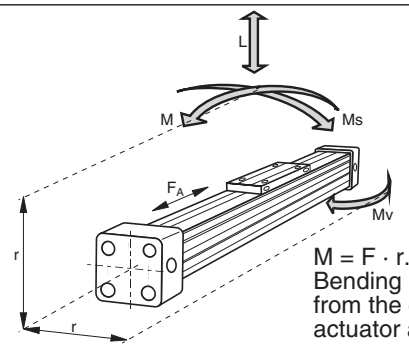


HOERBIGER ORIGA

Loads, Forces and Moments

Choice of cylinder is decided by:
- Permissible loads, forces and moments
- Performance of the pneumatic end cushions. The main factors here are the mass to be cushioned and the piston speed at start of cushioning (unless external cushioning is used, e. g. hydraulic shock absorbers).

The adjacent table shows the maximum values for light, shock-free operation, which must not be exceeded even in dynamic operation. **Load and moment data are based on speeds v ≤ 0.5 m/s.**



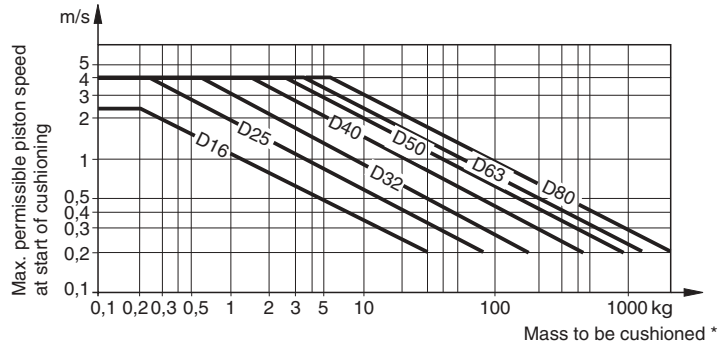
M = F · r.
Bending moments are calculated from the centre of the linear actuator and F indicates actual force.

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

1) Rodless Pneumatic Cylinder according to Series P 210, more informations on request

Cushioning Diagram

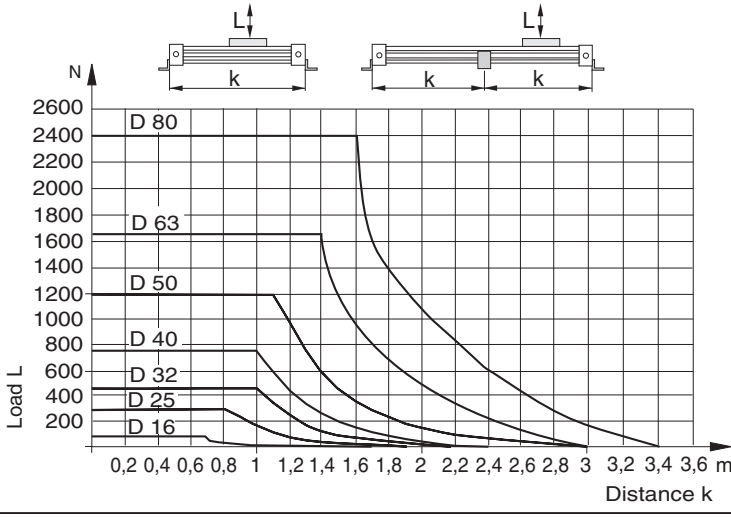
Work out your expected moving mass and read off the maximum permissible speed at start of cushioning.
Alternatively, take your desired speed and expected mass and find the cylinder size required.
Please note that piston speed at start of cushioning is typically ca. 50 % higher than the average speed, and that it is this higher speed which determines the choice of cylinder. If these maximum permissible values are exceeded, additional shock absorbers must be used.
Please ask for info on the optional adaptable cushioning system.



* For cylinders with linear guides or brakes, please be sure to take the mass of the carriage or the brake housing into account.

Mid-Section Supports

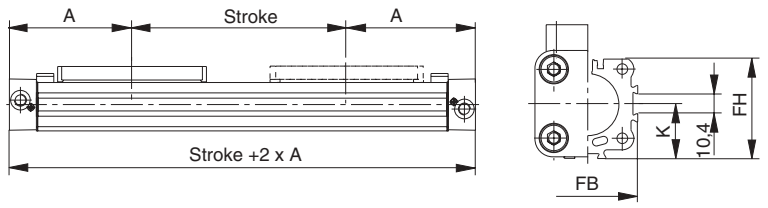
To avoid excessive bending and oscillation of the cylinder, mid-section supports are required dependent on specified stroke lengths and applied loads.

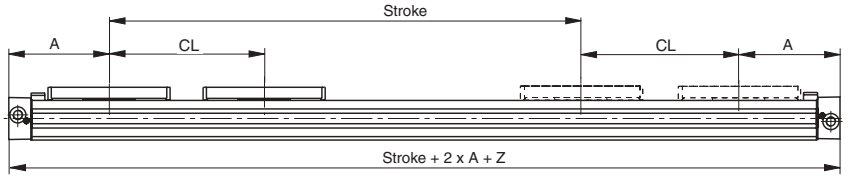


The diagram shows the maximum possible unsupported length dependent on the load. Deformation of 0.5 mm maximum between supports is permissible.

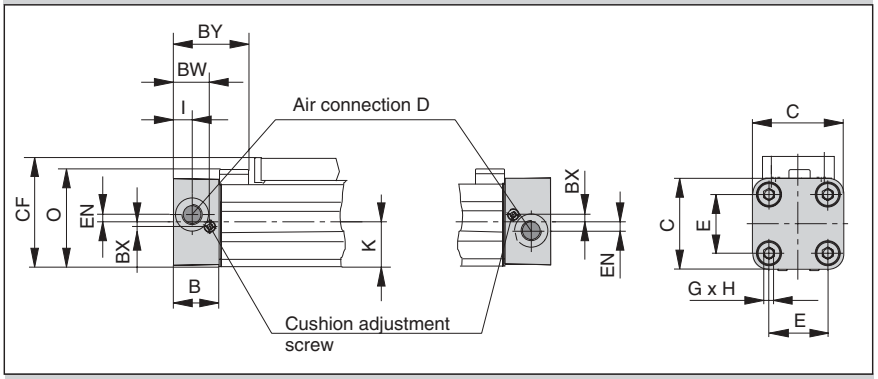
Mid-section supports are clamped on to the dovetail profile of the cylinder. They can also withstand axial forces.
For types and dimensions see Page 56.

Dimensions of Basic Cylinder OSP-P

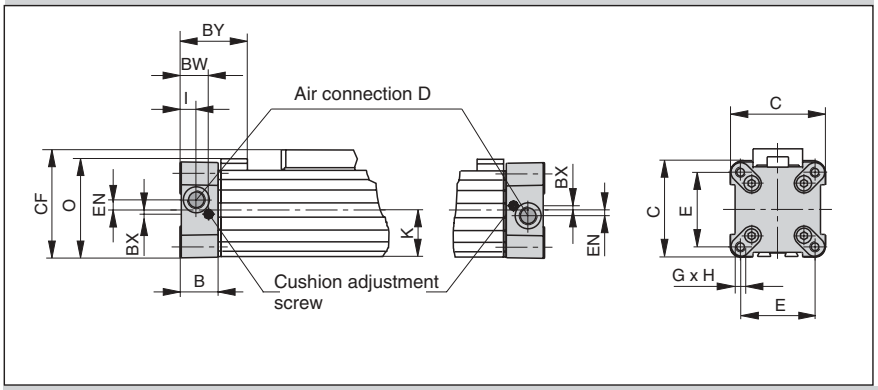




End Cap/Air Connection can be rotated 4 x 90°
Series OSP-P16 to P32



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



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

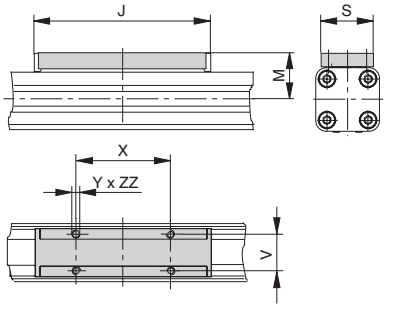
Two pistons are fitted: dimension "CL" is optional. (Please note minimum distance "Zmin").

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

Please note:

To avoid multiple actuation of sensors, the second piston is not equipped with magnets.

Carrier
Series OSP-P16 to P80

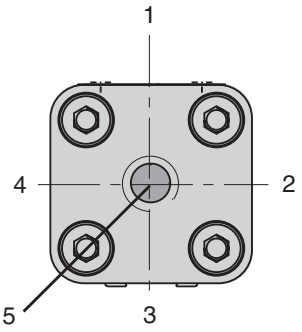


Dimension Table (mm)

Cylinder Series	A	B	C	D	E	G	H	I	J	K	M	O	S	V	X	Y	CL 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

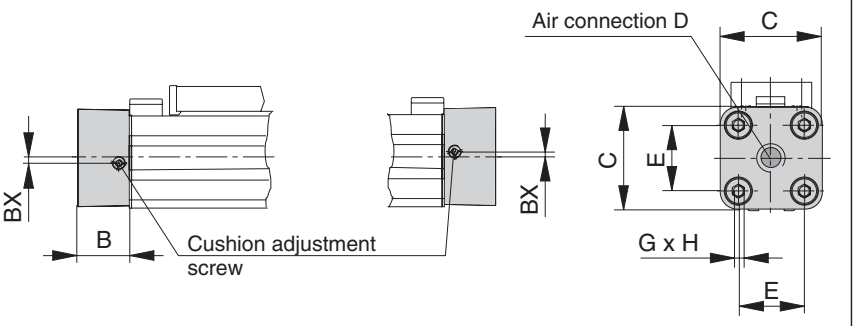
Air Connection on the End-face Position #5

In some situations it is necessary or desirable to fit a special end cap with the air connection on the end-face instead of the standard end cap with the air connection on the side. The special end cap can also be rotated 4 x 90° to locate the cushion adjustment screw as desired. Supplied in pairs.

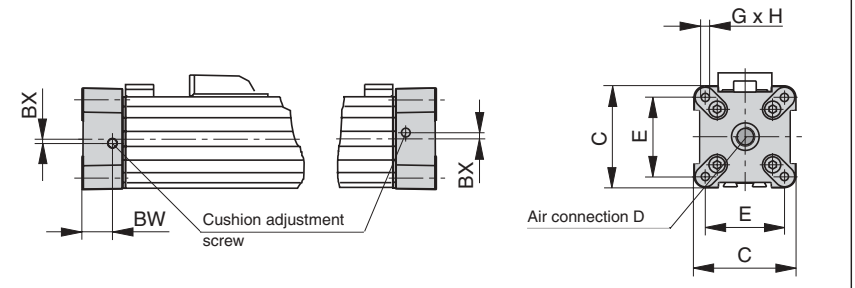


Note: Position #2 is the standard location.

Series OSP-P16 to P32



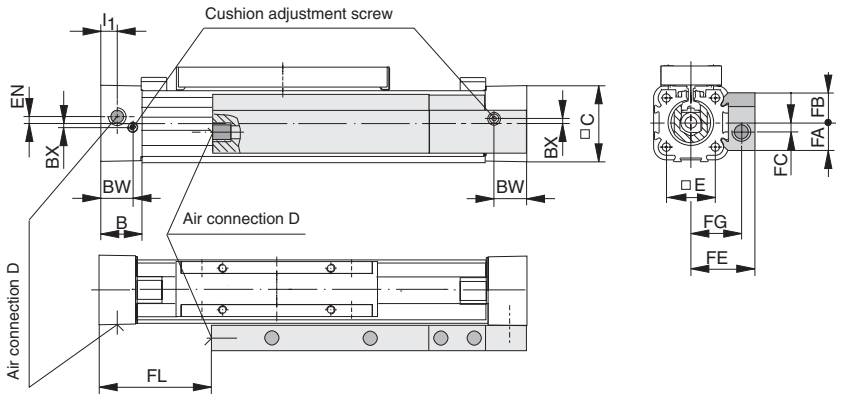
Series OSP-P40 to P80



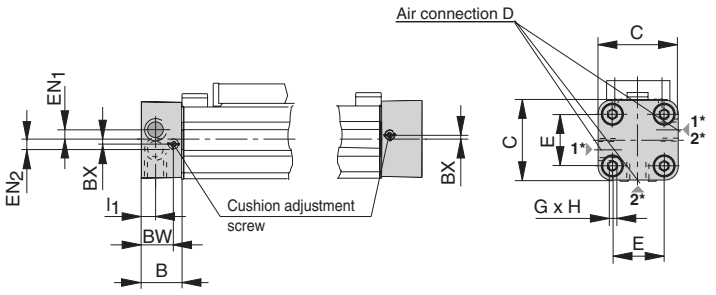
Dimension Table (mm)

Cylinder Series	B	C	D	E	G	H	BX	BW
OSP-P16	14	30	M5	18	M3	9	1.8	10.8
OSP-P25	22	41	G1/8	27	M5	15	2.2	17.5
OSP-P32	25.5	52	G1/4	36	M6	15	2.5	20.5
OSP-P40	28	69	G1/4	54	M6	15	3	21
OSP-P50	33	87	G1/4	70	M6	15	–	27
OSP-P63	38	106	G3/8	78	M8	21	–	30
OSP-P80	47	132	G1/2	96	M10	25	–	37.5

Series OSP-P16

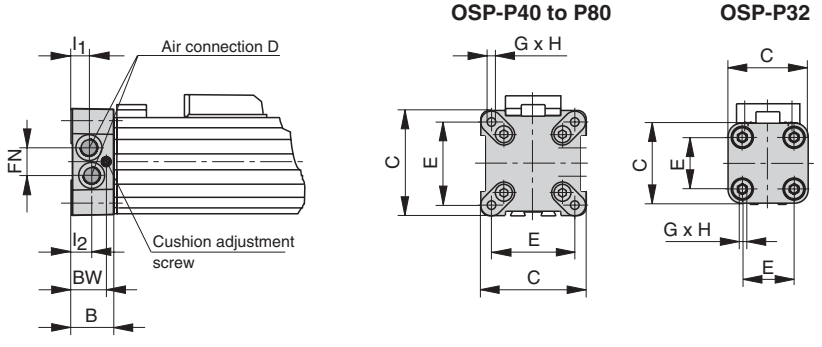


Series OSP-P25



* Versions of Air Connection Positions : 1➔1 oder 2➔2

Series OSP-P32 to P80



Single End Porting

A special end cap with both air connections on one side is available for situations where shortage of space, simplicity of installation or the nature of the process make it desirable.
Air supply to the other end is via internal air passages (OSP-P25 to P80) or via a hollow aluminium profile fitted externally (OSP-P16).
In this case the end caps cannot be rotated.

Please note:

When combining the OSP-P16 single end porting with inversion mountings, RS switches can only be mounted directly opposite to the external air-supply profile.

Dimension Table (mm)

Cylinder Series		B	C	D	E	G	H	l_1	l_2	BX	BW	EN	EN_1	EN_2	FA	FB	FC	FE	FG	FL	FN
OSP-P16		14	30	M5	18	M3	9	5.5	–	1.8	10.8	3	–	–	14	14	4	27	21	36	–
OSP-P25		22	41	G1/8	27	M5	15	9	–	2.2	17.5	–	3.6	3.9	–	–	–	–	–	–	–
OSP-P32		25.5	52	G1/8	36	M6	15	12.2	10.5	–	20.5	–	–	–	–	–	–	–	–	–	15.2
OSP-P40		28	69	G1/8	54	M6	15	12	12	–	21	–	–	–	–	–	–	–	–	–	17
OSP-P50		33	87	G1/4	70	M6	15	14.5	14.5	–	27	–	–	–	–	–	–	–	–	–	22
OSP-P63		38	106	G3/8	78	M8	21	16.5	13.5	–	30	–	–	–	–	–	–	–	–	–	25
OSP-P80		47	132	G1/2	96	M10	25	22	17	–	37.5	–	–	–	–	–	–	–	–	–	34.5

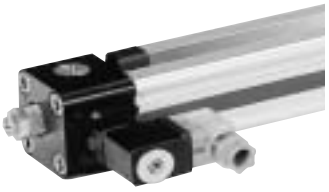
Integrated 3/2 Way Valves VOE

For optimal control of the OSP-P cylinder, 3/2 way valves integrated into the cylinder's end caps can be used as a compact and complete solution. They allow for easy positioning of the cylinder, smooth operation at the lowest speeds and fast response, making them ideally suited for the direct control of production and automation processes.

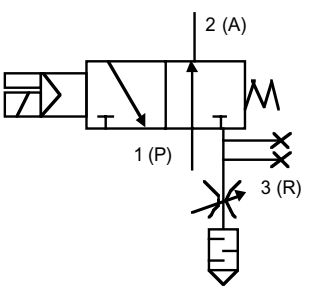
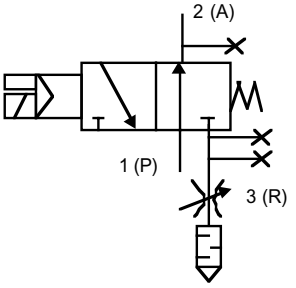
Integrated 3/2 Way Valves VOE Series OSP-P25, P32, P40 and P50

Characteristics:

- Complete compact solution
- Various connection possibilities: Free choice of air connection with rotating end caps with VOE valves, Air connection can be rotated 4x90°, Solenoid can be rotated 4x90°, Pilot valve can be rotated 180°
- High piston velocities can be achieved with max. 3 exhaust ports
- Minimal installation requirements
- Requires just one air connection per valve
- Optimal control of the OSP-P cylinder
- Excellent positioning characteristics
- Integrated operation indicator.
- Integrated exhaust throttle valve
- Manual override - indexed
- Adjustable end cushioning
- Easily retrofitted – please note the increase in the overall length of the cylinder!

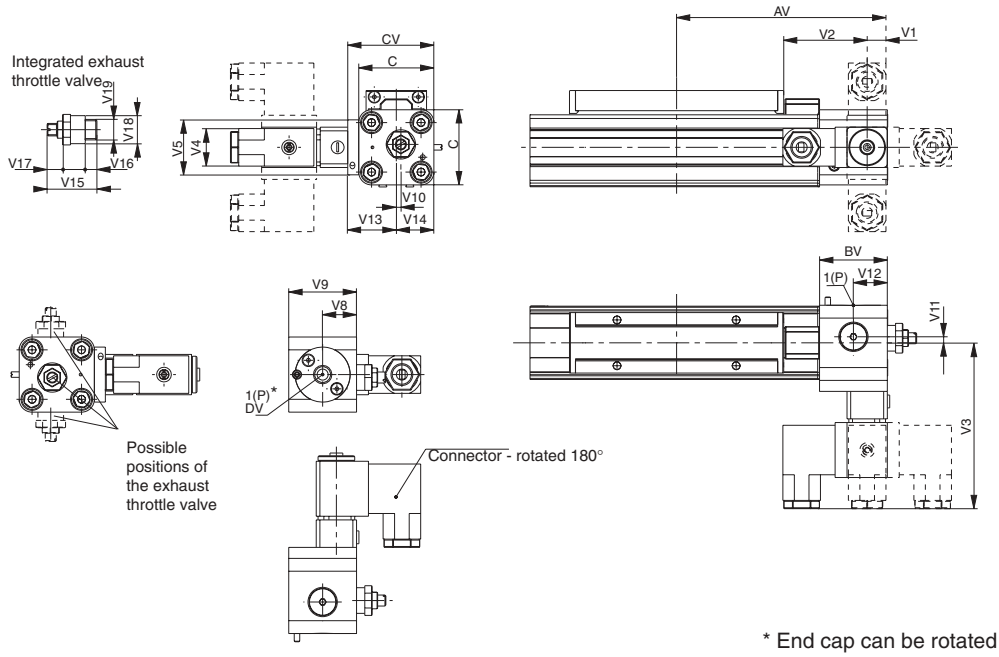


Characteristics 3/2 Way Valves VOE

Characteristics	3/2 Way Valves with spring return			
Pneumatic diagram				
Type	VOE-25	VOE-32	VOE-40	VOE-50
Actuation	electrical			
Basic position	P ➔ A open, R closed			
Type	Poppet valve, non overlapping			
Mounting	integrated in end cap			
Installation	in any position			
Port size	G 1/8	G 1/4	G 3/8	G 3/8
Temperature	-10°C to +50°C *			
Operating pressure	2-8 bar			
Nominal voltage	24 V DC / 230 V AC, 50 Hz			
Power consumption	2,5 W / 6 VA			
Duty cycle	100%			
Electrical Protection	IP 65 DIN 40050			

* other temperature ranges on request

Dimensions VOE Valves OSP-P25 and P32

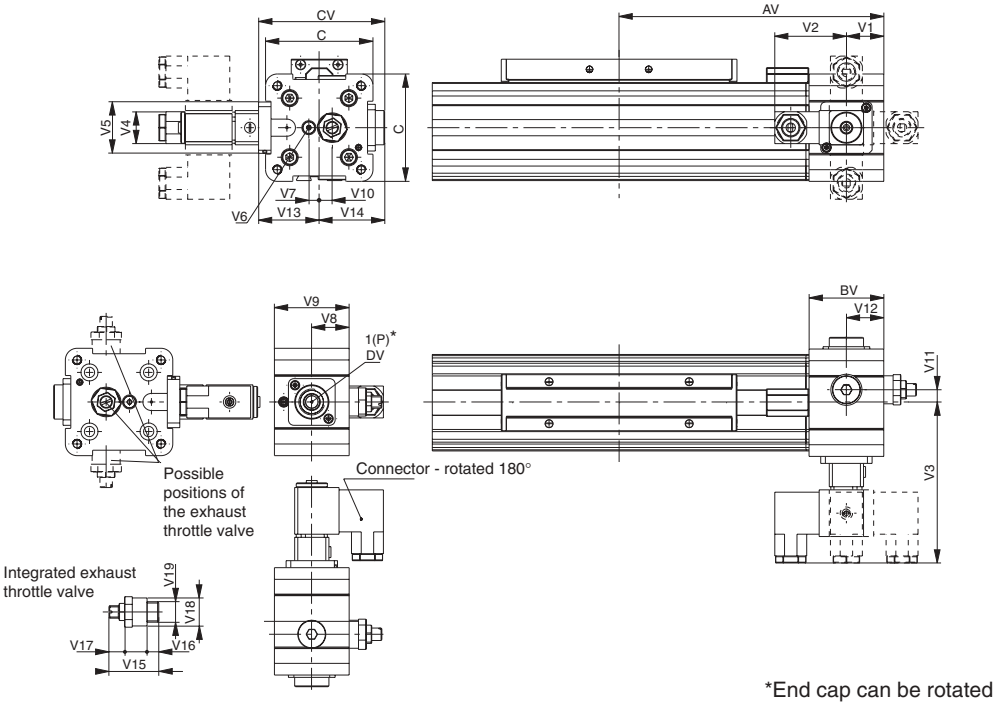


* End cap can be rotated 4x90°

Dimension Table (mm)

Cylinder-Series	AV	BV	C	CV	DV	V1	V2	V3	V4	V5	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19
OSP-P25	115	37	41	47	G1/8	11	46	90.5	22	30	18.5	32.5	2.5	3.3	18.5	26.5	20.5	24	5	4	14	G1/8
OSP-P32	139	39.5	52	58	G1/4	20.5	46	96	22	32	20.5	34.7	6	5	20.5	32	26	32	7.5	6	18	G1/4

Dimensions VOE Valves OSP-P40 and P50



*End cap can be rotated 4x90°

Dimension Table (mm)

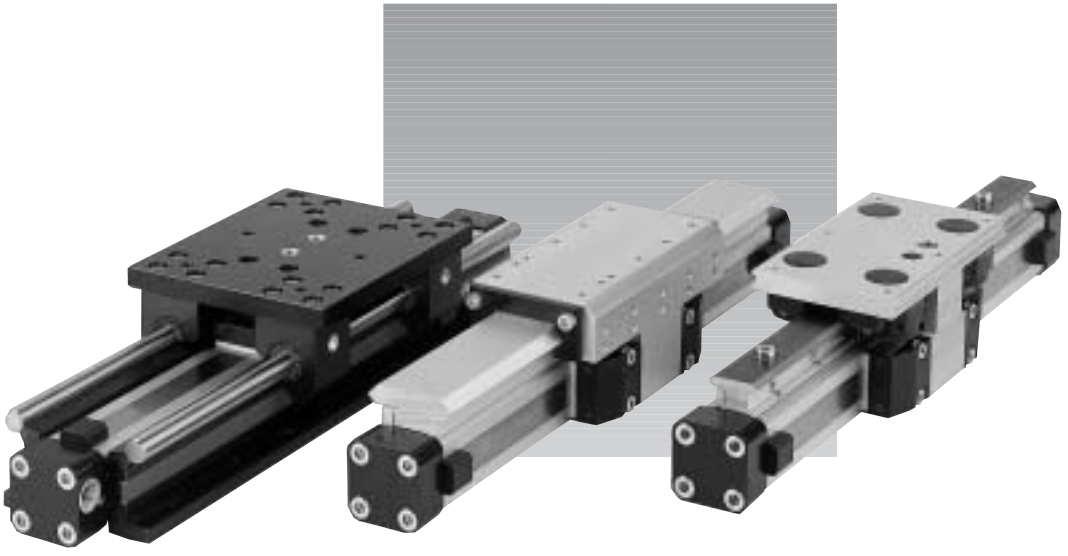
Cylinder-Series	AV	BV	C	CV	DV	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19
OSP-P40	170	48	69	81	G3/8	24	46	103	22	33	M5	6.7	24	42	8.3	8.3	24	39	42	32	7.5	6	18	G1/4
OSP-P50	190	48	87	82	G3/8	24	46	102	22	33	M5	4.5	24	42	12.2	12.2	24	38	44	32	7.5	6	18	G1/4

PNEUMATIC
GROUP

Guides

ORIGA SYSTEM PLUS

LINEAR GUIDES
FOR OSP-P

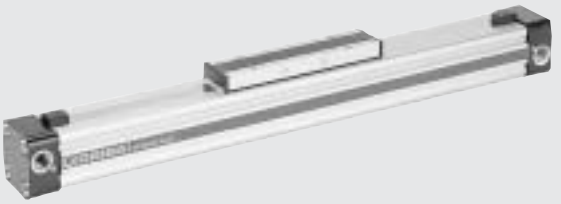


HOERBIGER
ORIGA

OSP
— ORIGA
— SYSTEM
— PLUS

Linear Guides

Pneumatic linear drive
– Series OSP - P



Adaptive modular system

The Origa system plus – OSP – provides a comprehensive range of linear guides for the pneumatic and electric linear drives.

Versions:

Pneumatic linear drive
Series OSP - P

- Piston diameters:
  16 - 25 - 32 - 40 - 50 - 63 mm

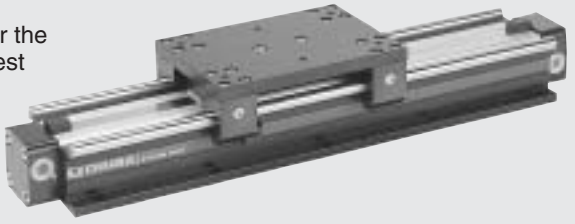
Advantages:

- Takes high loads and forces
- High precision
- Smooth operation
- Can be retrofitted
- Can be installed in any position

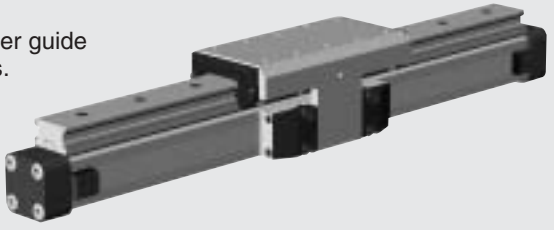
SLIDELINE
The cost-effective plain bearing guide for medium loads.
Brake optional.
See page 23

POWERSLIDE
The roller guide for heavy loads.
See page 25

GUIDELINE
The ball bushing guide for the heaviest loads and greatest accuracy.
See page 29



PROLINE
The compact aluminium roller guide for high loads and velocities.
See page 33



HOERBIGER ORIGA

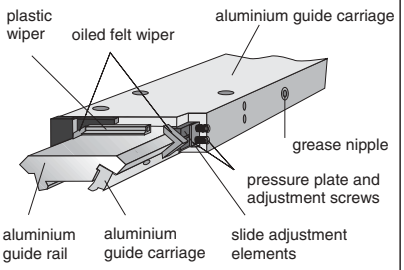
HOERBIGER-ORIGA Corporation • 100 West Lake Drive • IL-Glendale Heights, Illinois •
Tel. 630-871-8300 • Fax 630-871-1515 • e-mail: usmarket@hoerbiger-origa.com
Internet http://www.hoerbigeroriga.com

Plain Bearing Guide SLIDELINE

OSP
ORIGA SYSTEM PLUS

Versions

Standard versions
– for pneumatic linear drive:
Series OSP-P



Series SL 16 to 63
for Linear-drive
• Series OSP-P

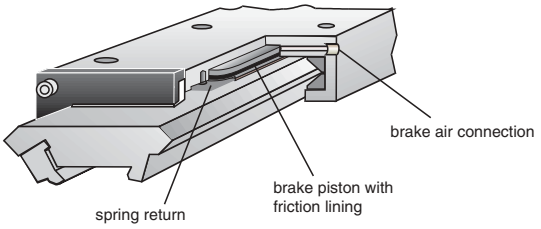
Features:

- ANODIZED 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.
- Speeds over 300mm per second, consult factory.

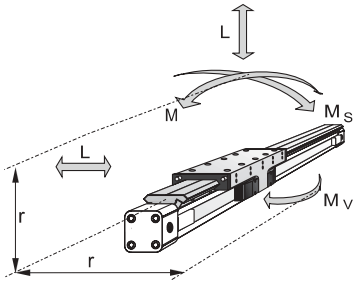
Integral brake (option)
for series OSP-P25 to OSP-P63:

- Actuated by pressure
- Released by exhausting and spring return

Option – integral Brake



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.

For further technical data see also linear drives OSP-P (page 13)

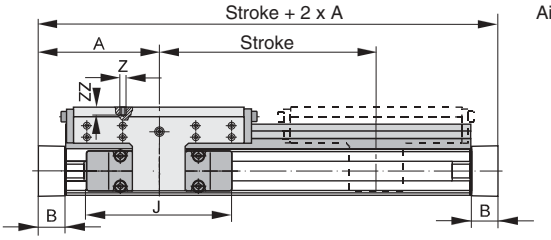
Series	For linear drive	Max. moments [Nm]			Max. loads [N]	Maximum braking force at 6 bar [N] [1]	Mass of linear drive with guide [kg]		Mass * of guide carriage [kg]
							with 0 mm stroke OSP-P	increase pro 100 mm stroke OSP-P	
		M	Ms	Mv	L				
SL16	OSP-P16	11	6	11	325	–	0.57	0.22	0.23
SL 25	OSP-P25	34	14	34	675	325	1.55	0.39	0.61
SL 32	OSP-P32	60	29	60	925	545	2.98	0.65	0.95
SL 40	OSP-P40	110	50	110	1500	835	4.05	0.78	1.22
SL50	OSP-P50	180	77	180	2000	1200	6.72	0.97	2.06
SL63	OSP-P63	260	120	260	2500	–	11.66	1.47	3.32

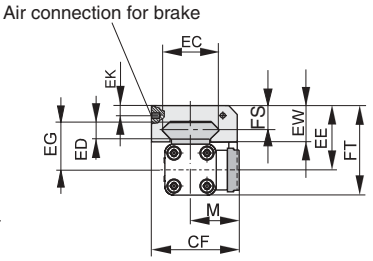
[1] Only with integrated brake: Braking force on dry oil-free surface
Values are decreased for lubricated slideways
[2] Corrosion resistant fixtures available on request

HOERBIGER ORIGA

Dimensions

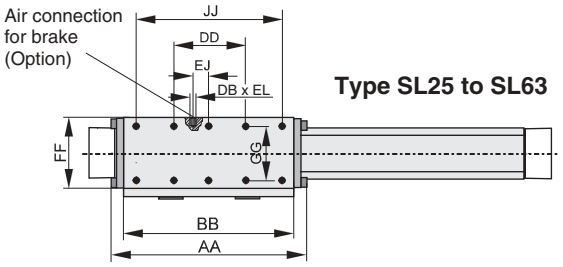
Series OSP-P



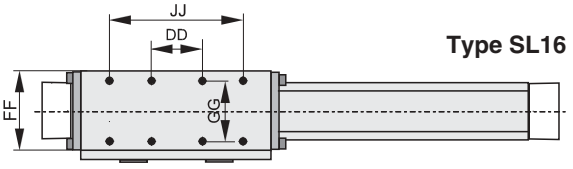


For further mounting elements and options see accessories.

For further information and technical data see data sheets for linear drives OSP-P (page 13)



Type SL25 to SL63



Type SL16

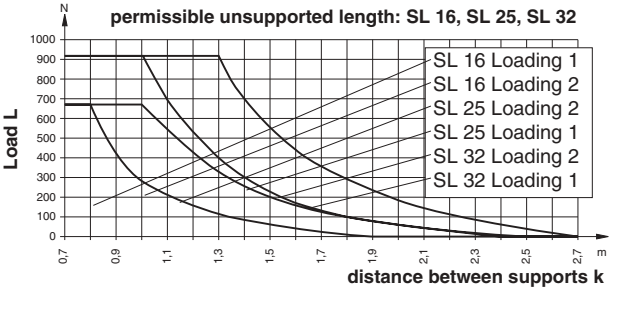
Dimension Table (mm)

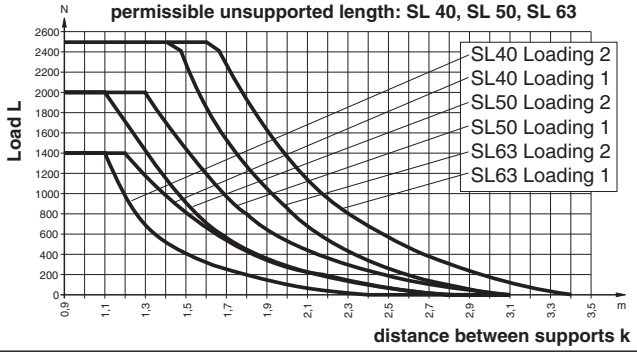
Series	A	B	J	M	Z	AA	BB	DB	DD	CF	EC	ED	EE	EG	EJ	EK	EL	EW	FF	FT	FS	GG	JJ	ZZ
SL 16	65	14	69	30	M4	106	88	M5	30	55	36	8	40	30	–	–	–	22	48	55	14	36	70	8
SL 25	100	22	117	39.5	M6	162	142	G1/8	60	72.5	47	12	53	39	22	6	6	30	64	73.5	20	50	120	12
SL 32	125	25.5	152	48	M6	205	185	G1/8	80	91	67	14	62	48	32	6	6	33	84	88	21	64	160	12
SL 40	150	28	152	54	M6	240	220	G1/8	100	102	77	14	64	50	58	6	6	34	94	98.5	21.5	78	200	12
SL 50	175	33	200	61	M6	284	264	G1/8	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	G1/8	130	152	116	18	86	66	–	–	–	46	152	139	29	120	260	14

Mid-Section Support

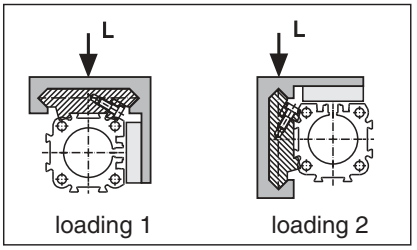
(for versions see page 56)

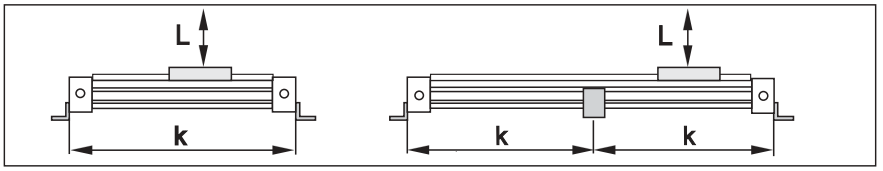
Mid-section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading.
A distinction must be drawn between loading 1 and loading 2.
Deflection of 0.5 mm max.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





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





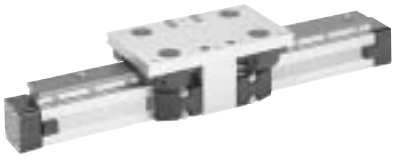
Roller Guide POWERSLIDE

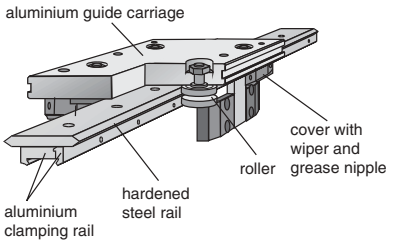
OSP
ORIGA SYSTEM PLUS

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

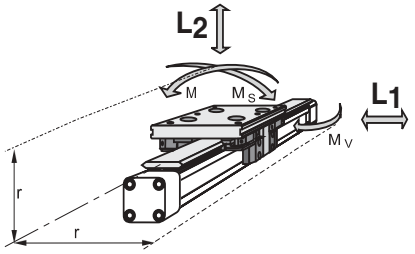
Versions

– for pneumatic linear drive: Series OSP-P





Loads, forces and moments



example: PS 25/35

width of guide rail (35 mm)

size of drive OSP-P25

Features:

- Anodized 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)

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 (page 13)

*** Please note:**
In the cushioning diagram, add the mass of the guide carriage to the mass to be cushioned.

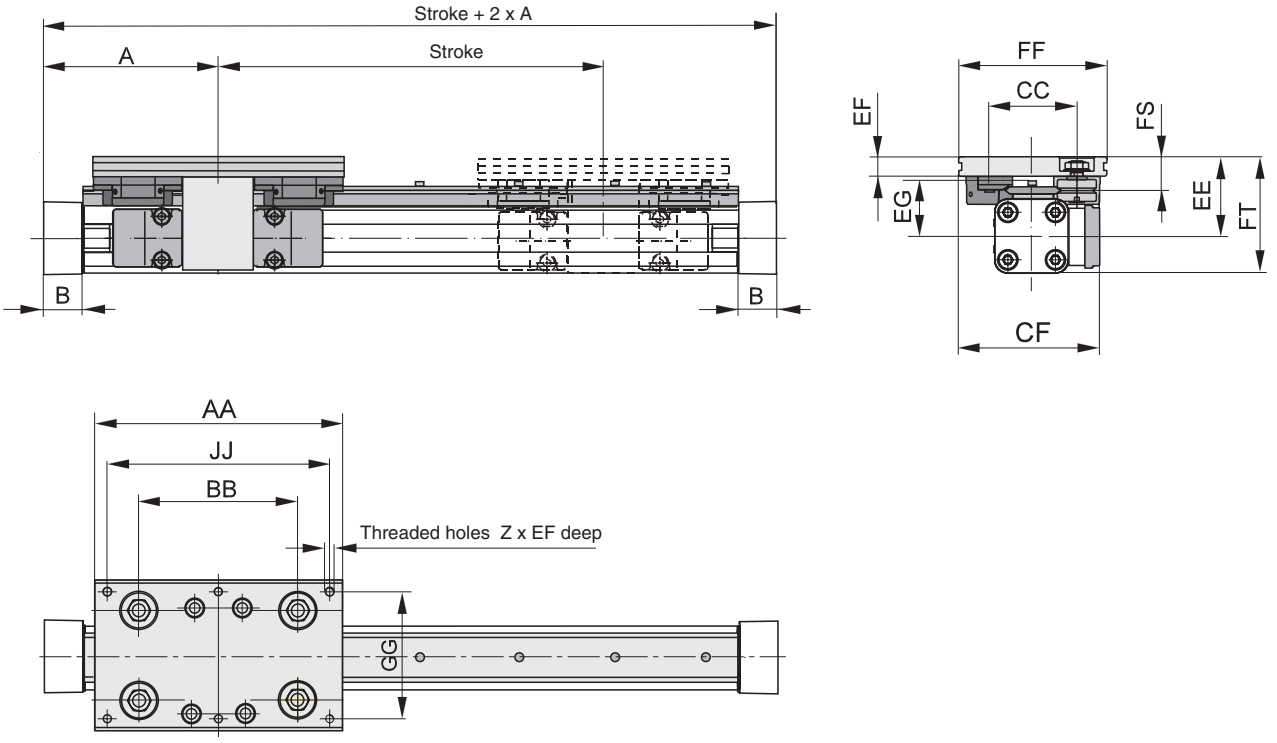
Series	For linear drive	Max. moments [Nm]			Max. load [N]	Mass of linear drive with guide [kg]		Mass * of guide carriage [kg]
		M	Ms	Mv	L_1, L_2	with 0 mm stroke	increase pro 100 mm stroke	
PS 16/25	OSP-P16	45	14	45	1400	0.93	0.24	0.7
PS 25/25	OSP-P25	63	14	63	1400	1.5	0.4	0.7
PS 25/35	OSP-P25	70	20	70	1400	1.7	0.4	0.8
PS 25/44	OSP-P25	175	65	175	3000	2.6	0.5	1.5
PS 32/35	OSP-P32	70	20	70	1400	2.6	0.6	0.8
PS 32/44	OSP-P32	175	65	175	3000	3.4	0.7	1.5
PS 40/44	OSP-P40	175	65	175	3000	4.6	1.1	1.5
PS 40/60	OSP-P40	250	90	250	3000	6	1.3	2.2
PS 50/60	OSP-P50	250	90	250	3000	7.6	1.4	2.3
PS 50/76	OSP-P50	350	140	350	4000	11.5	1.8	4.9

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

HOERBIGER ORIGA

Dimensions

Series OSP-P



Dimension Table (mm)

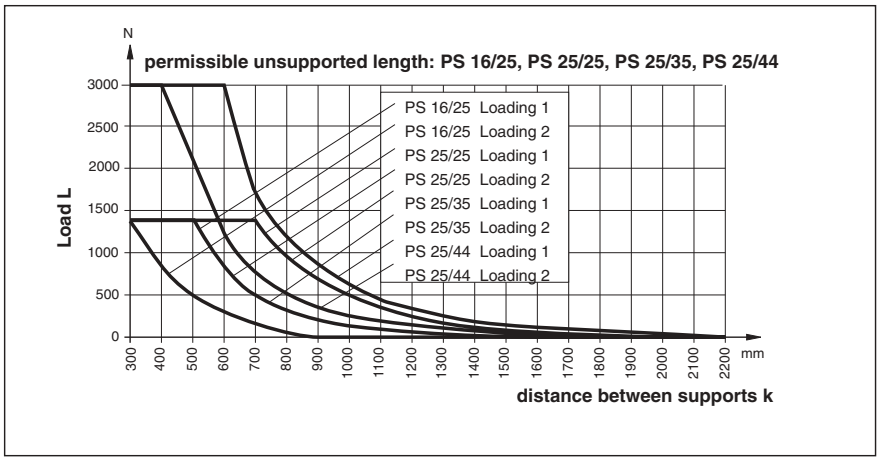
Series	A	B	Z	AA	BB	CC	CF	EE	EF	EG	FF	FS	FT	GG	JJ
PS16/25	65	14	4xM6	120	65	47	80	49	12	35	80	21	64	64	100
PS 25/25	100	22	6xM6	145	90	47	79.5	53	11	39	80	20	73.5	64	125
PS 25/35	100	22	6xM6	156	100	57	89.5	52.5	12.5	37.5	95	21.5	73	80	140
PS 25/44	100	22	6xM8	190	118	73	100	58	15	39	116	26	78.5	96	164
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

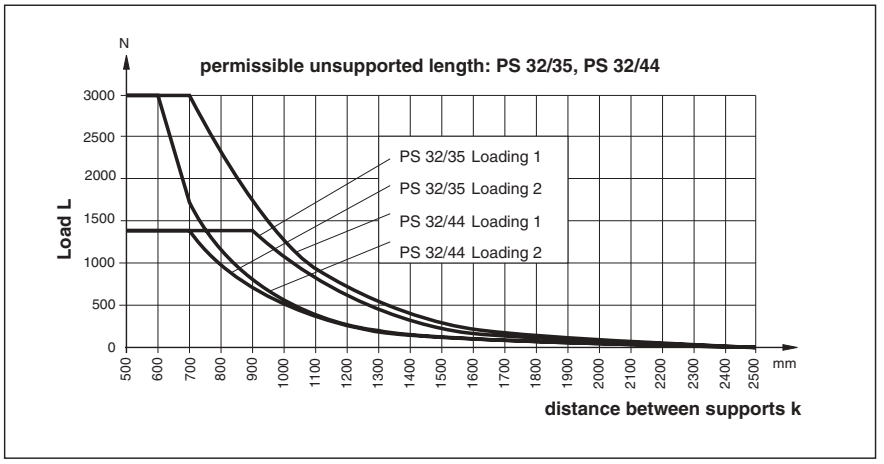
Mid-Section Support

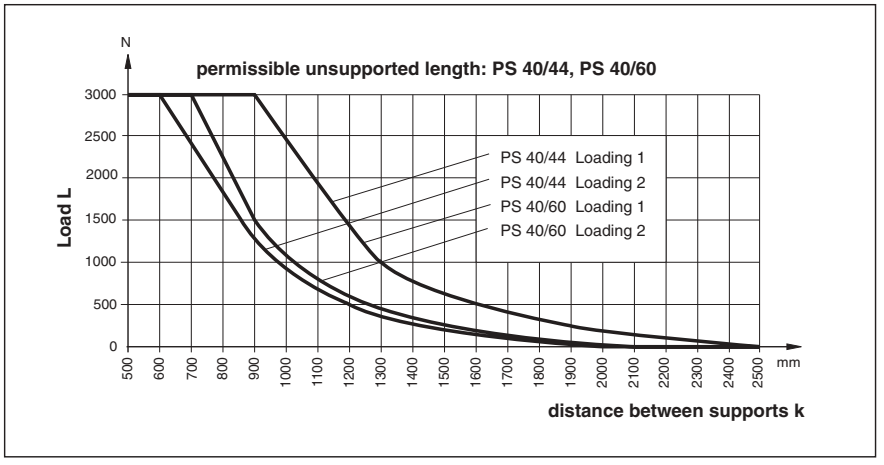
(for versions, see page 56)

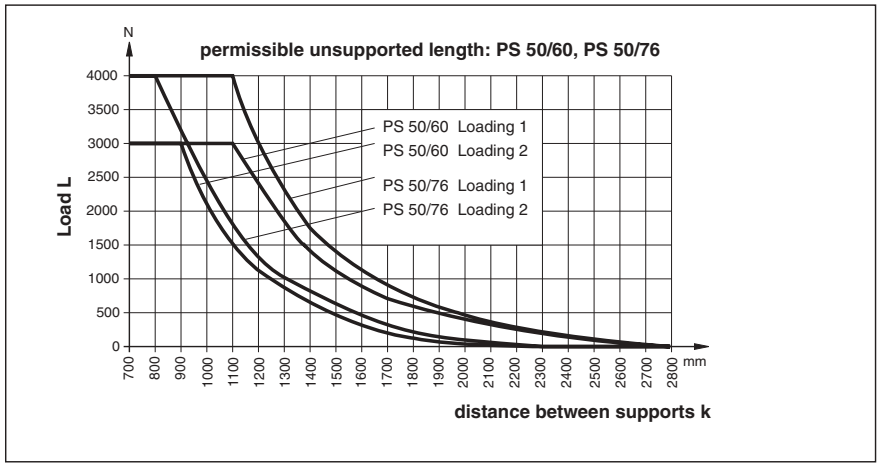
Mid section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading.
A distinction must be drawn between loading 1 and loading 2.
Deflection of 0.5 mm max.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

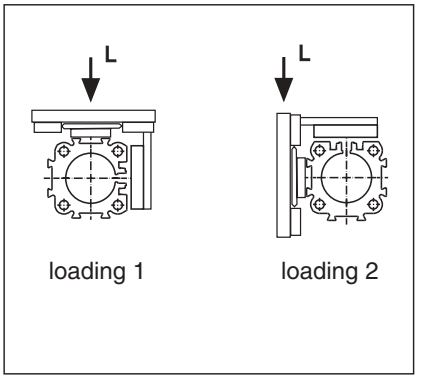
Note
For speeds v > 0.5 m/s the distance between supports should not exceed 1m.

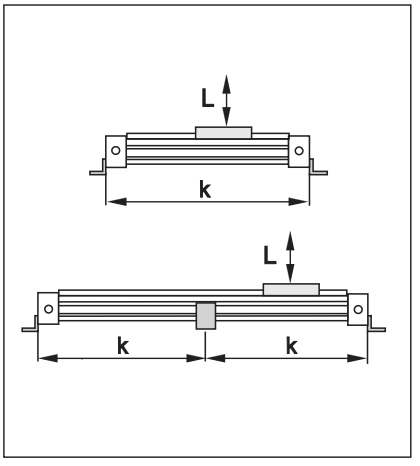












Service life

Calculation of service life is achieved in two stages:

- Determination of load factor L_F from the loads to be carried
- Calculation of service life in km

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.

1. Calculation of load factor L_F

$$L_F = \frac{M}{M_{max}} + \frac{M_S}{M_{S\,max}} + \frac{M_V}{M_{V\,max}} + \frac{L_1}{L_{1max}} + \frac{L_2}{L_{2max}}$$

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

2. Calculation of service life

- **For PS 16/25, PS 25/25, PS 25/35, and PS 32/35**

  Service life [km] = $\dfrac{106}{(L_F + 0.02)^3}$

- **For PS 25/44, PS 32/44, PS 40/44, PS 40/60 and PS 50/60:**

  Service life [km] = $\dfrac{314}{(L_F + 0.015)^3}$

- **For PS 50/76:**

  Service life [km] = $\dfrac{680}{(L_F + 0.015)^3}$

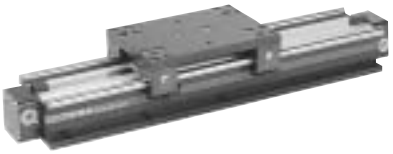
Ball bushing guide GUIDELINE

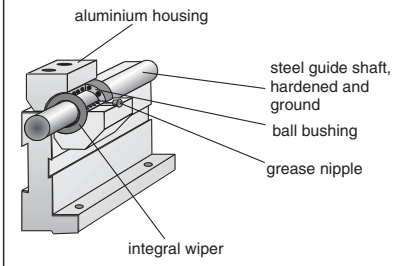
OSP
ORIGA SYSTEM PLUS

Series GDL 25 to 50
for Linear-drive
• Series OSP-P

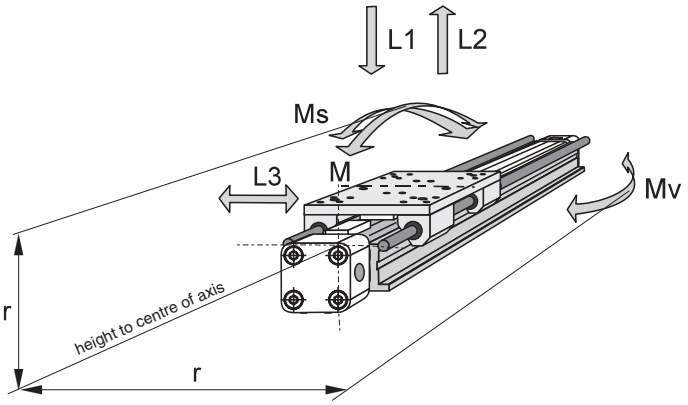
Versions

– Versions for 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 (page 13)

*** Please note:**
In the cushioning diagram, add the mass of the guide carriage to the mass to be cushioned.

Features

- Anodized aluminium guide rail with four ball bushings
- Hardened and ground steel guide shafts
- Stainless steel guide shafts available on request
- Max. speed v = 3 m/s
- OSP-P: smooth slow speed operation $v_{min} \geq 0.02$ m/s.
- Any length of stroke up to 6000 mm (longer strokes on request)

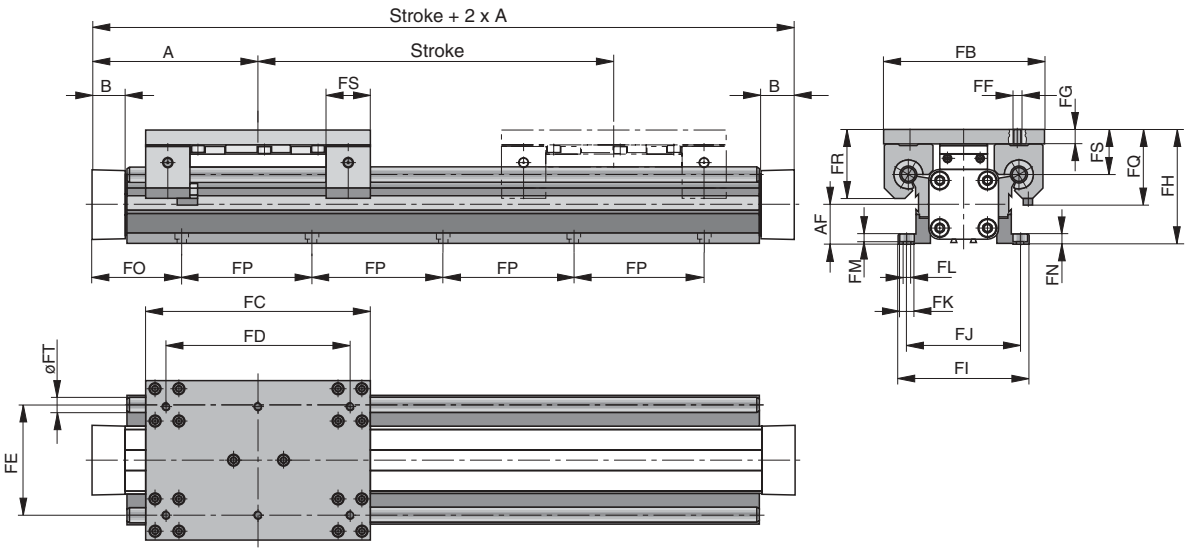
Series	For linear drive	Max. moments [Nm]			Max. load [N]			Mass of linear drive with guide [kg]		Mass * of guide carriage [kg]
		M	Ms	Mv	L_1	L_2	L_3	with 0 mm stroke	increase p. 100 mm stroke	
GDL 25	OSP-P25	115	75	90	2500	2100	1650	2.5	0.7	1.1
GDL 32	OSP-P32	145	90	115	2500	2100	1650	3.6	0.9	1.2
GDL 40	OSP-P40	440	330	310	8000	6250	4400	6.3	1.4	2.0
GDL 50	OSP-P50	500	375	355	8000	6250	4400	8.6	1.6	2.2

[1] corrosion resistance version available on request (max. loads and moments are 30% lower)

HOERBIGER ORIGA

Dimensions

Series OSP-P

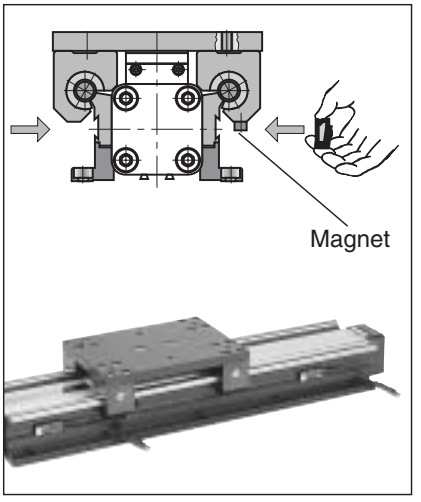


Note:

The guideline linear guide must be mounted on a flat surface along its entire length.

Arrangement of proximity sensors:

Proximity sensors can be fitted anywhere on either side.
The magnet can be screwed on to one of the four ball bushing housings from underneath.



Dimension Table (mm)

Series	A	B	AF	FB	FC	FD	FE	FF	FG	FH	FI	FJ	øFK	øFL	FM	FN	FP	FQ	FR	FS	øFT	FU
GDL 25	100	22	22	120	145	110	70	M6	11	78	86	73	10.5	6.0	5.7	8	100	56.5	51.5	33.5	12	32
GDL 32	125	25.5	30	120	170	140	80	M6	11	86	98	85	10.5	6.0	5.7	8	100	56.5	51.5	33.5	12	32
GDL 40	150	28	38	160	180	140	110	M8	14	108	120	104	12	7.5	6.8	10	100	73	61	38	16	36
GDL 50	175	33	48	180	200	160	120	M8	14	118	134	118	12	7.5	6.8	10	100	73	61	38	16	36

FO				
OSP-P				
x	P25	P32	P40	P50
00	50.0	75.0	50.0	75.0
01	50.5	75.5	50.5	75.5
02	51.0	76.0	51.0	76.0
03	51.5	76.5	51.5	76.5
04	52.0	77.0	52.0	77.0
05	52.5	77.5	52.5	77.5
06	53.0	78.0	53.0	78.0
07	53.5	78.5	53.5	78.5
08	54.0	79.0	54.0	79.0
09	54.5	79.5	54.5	79.5
10	55.0	80.0	55.0	80.0
11	55.5	80.5	55.5	80.5
12	56.0	81.0	56.0	81.0
13	56.5	81.5	56.5	81.5
14	57.0	82.0	57.0	82.0
15	57.5	82.5	57.5	82.5
16	58.0	83.0	58.0	83.0
17	58.5	83.5	58.5	83.5
18	59.0	84.0	59.0	84.0
19	59.5	84.5	59.5	84.5
20	60.0	85.0	60.0	85.0
21	60.5	85.5	60.5	85.5
22	61.0	36.0	61.0	86.0
23	61.5	36.5	61.5	86.5
24	62.0	37.0	62.0	87.0
25	62.5	37.5	62.5	87.5
26	63.0	38.0	63.0	88.0
27	63.5	38.5	63.5	88.5
28	64.0	39.0	64.0	89.0
29	64.5	39.5	64.5	89.5
30	65.0	40.0	65.0	90.0
31	65.5	40.5	65.5	90.5
32	66.0	41.0	66.0	91.0
33	66.5	41.5	66.5	91.5
34	67.0	42.0	67.0	92.0
35	67.5	42.5	67.5	92.5
36	68.0	43.0	68.0	93.0
37	68.5	43.5	68.5	43.5
38	69.0	44.0	69.0	44.0
39	69.5	44.5	69.5	44.5
40	70.0	45.0	70.0	45.0
41	70.5	45.5	70.5	45.5
42	71.0	46.0	71.0	46.0
43	71.5	46.5	71.5	46.5
44	72.0	47.0	72.0	47.0
45	72.5	47.5	72.5	47.5
46	73.0	48.0	73.0	48.0
47	73.5	48.5	73.5	48.5
48	74.0	49.0	74.0	49.0
49	74.5	49.5	74.5	49.,5

FO				
OSP-P				
x	P25	P32	P40	P50
50	75.0	50.0	75.0	50.0
51	75.5	50.5	75.5	50.5
52	76.0	51.0	76.0	51.0
53	76.5	51.5	76.5	51.5
54	77.0	52.0	77.0	52.0
55	77.5	52.5	77.5	52.5
56	78.0	53.0	78.0	53.0
57	78.5	53.5	78.5	53.5
58	79.0	54.0	79.0	54.0
59	79.5	54.5	79.5	54.5
60	80.0	55.0	80.5	55.0
61	80.5	55.5	80.5	55.5
62	81.0	56.0	81,0	56.0
63	81.5	56.5	81.5	56.5
64	82.0	57.0	82.0	57.0
65	32.5	57.5	82.5	57.5
66	33.0	58.0	83.0	58.0
67	33.5	58.5	83.5	58.5
68	34.0	59.0	84.0	59.0
69	34.5	59.5	84.5	59.5
70	35.0	60.0	85.0	60.0
71	35.5	60.5	85.5	60.5
72	36.0	61.0	86.0	61.0
73	36.5	61.5	86.5	61.5
74	37.0	62.0	87.0	62.0
75	37.5	62.5	87.5	62.5
76	38.0	63.0	88.0	63.0
77	38.5	63.5	38.5	63.5
78	39.0	64.0	39.0	64.0
79	39.5	64.5	39.5	64.5
80	40.0	65.0	40.0	65.0
81	40.5	65.5	40.5	65.5
82	41.0	66.0	41.0	66.0
83	41.5	66.5	41.5	66.5
84	42.0	67.0	42.0	67.0
85	42.5	67.5	42.5	67.5
86	43.0	68.0	43.0	68.0
87	43.5	68.5	43.5	68.5
88	44.0	69.0	44.0	69.0
89	44.5	69.5	44.5	69.5
90	45.0	70.0	45.0	70.0
91	45.5	70.5	45.5	70.5
92	46.0	71.0	46.0	71.0
93	46.5	71.5	46.5	71.5
94	47.0	72.0	47.0	72.0
95	47.5	72.5	47.5	72.5
96	48.0	73.0	48.0	73.0
97	48.5	73.5	48.5	73.5
98	49.0	74.0	49.0	74.0
99	49.5	74.5	49.5	74.5

Note:

The dimension FO is derived from the last two digits of the stroke:

Example:

Stroke 15 ***25*** mm

For a cylinder OSP-P25 the adjacent table indicates that for x=25mm:
FO = 62.5 mm

System Life

The calculation for expected service life is achieved in three steps:

- Determination of the load factor L_F, inserting actual values into the adjacent equation
- Determination of guidance constant K_F
- Calculation of the service life in km

Lubrication

For maximum system life, lubrication of the ball bushings 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.

1. Calculation of load factor L_F

$$L_F = \frac{M}{M_{max}} + \frac{M_S}{M_{S\,max}} + \frac{M_V}{M_{V\,max}} + \frac{L_1}{L_{1max}} + \frac{L_2}{L_{2max}} + \frac{L_3}{L_{3max}}$$

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

2. Guidance constant K_F

Installation	guidance constant K_F	
	GDL 25, GDL 32	GDL 40, GDL 50
Horizontal	200	210
Sideways	250	320
Vertical	90	120

3. Service life calculation

Approximate service life is calculated using the following equation:

$$\text{Service life [km]} = \frac{K_F}{L_F^{\,3}}$$

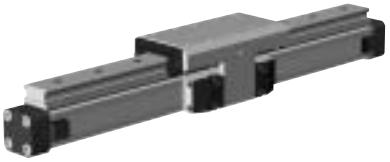
Aluminium Roller Guide PROLINE

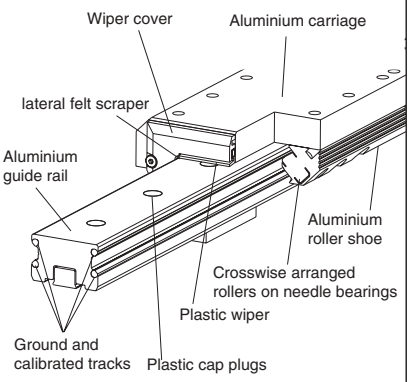
OSP
ORIGA SYSTEM PLUS

Series PL 25 to 50
for Linear Drive
• Series OSP-P

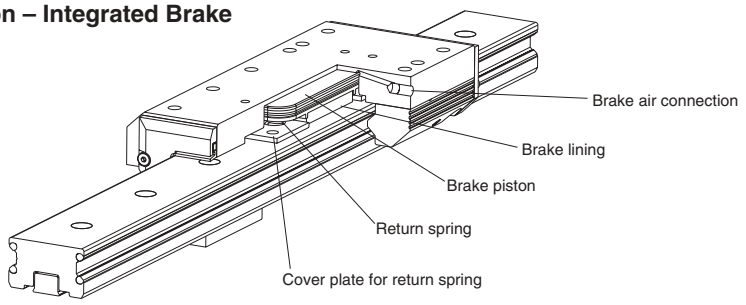
Versions

Standard versions
– for pneumatic Linear Drive:
Series OSP-P

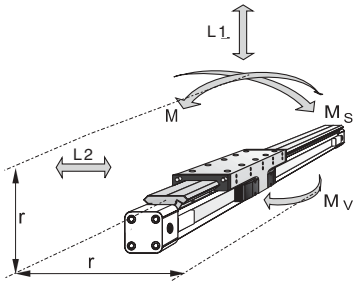




Option – Integrated Brake



Loads, Forces and Moments



Technical Data

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

$$\frac{M}{M_{max}} + \frac{M_S}{M_{S\,max}} + \frac{M_V}{M_{V\,max}} + \frac{L_1}{L_{1max}} + \frac{L_2}{L_{2max}} \leq 1$$

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.

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
- Stainless steel version available on request
- Any length of stroke up to 3750 mm

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

- Actuated by pressurization
- 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.

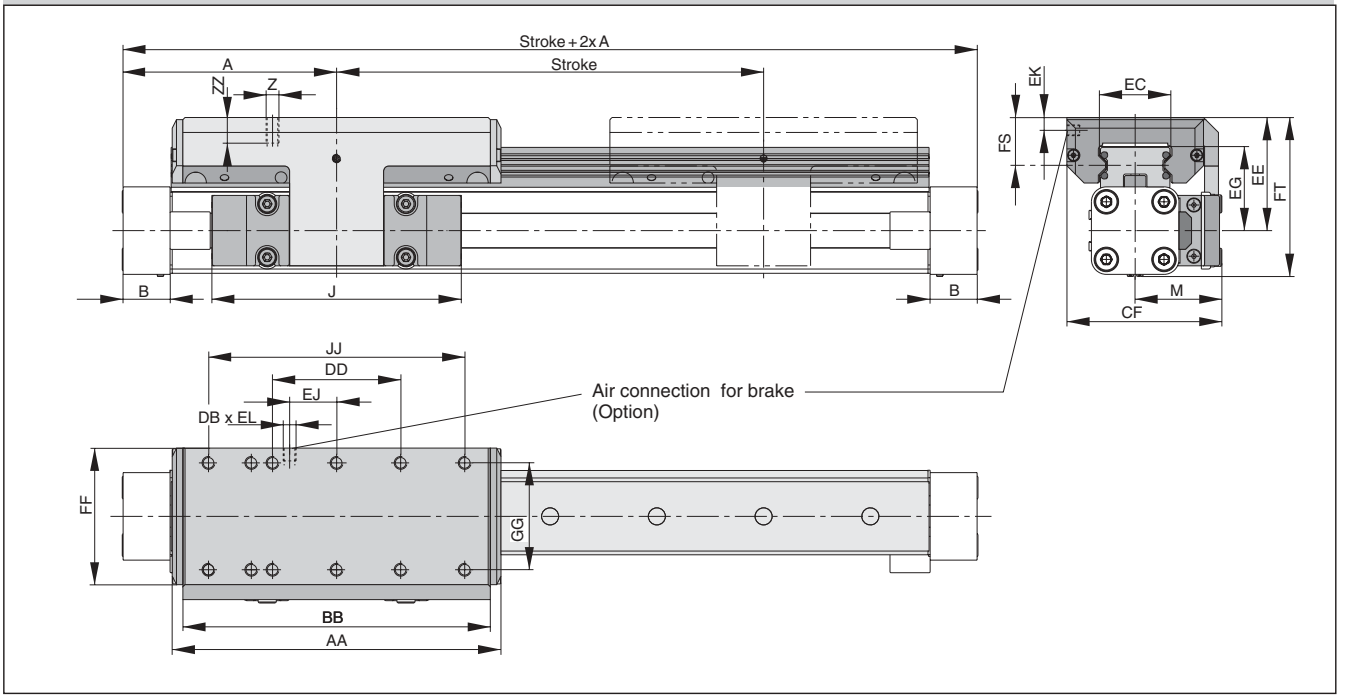
*Consult factory

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]
		M	Ms	Mv	L1, L2		with 0 mm stroke	increase per 100 mm stroke	
PL 25	OSP-P-25	55	23	55	1210	on request	1.65	0.40	0.75
PL 32	OSP-P-32	91	36	91	1460	on request	3.24	0.62	1.18
PL 40	OSP-P-40	198	72	198	2600	on request	4.35	0.70	1.70
PL 50	OSP-P-50	313	139	313	3890	on request	7.03	0.95	2.50

[1] Only for version with brake:
Braking surface dry – oiled surface reduces the effective braking force.
[2] Stainless steel version on request

HOERBIGER ORIGA

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



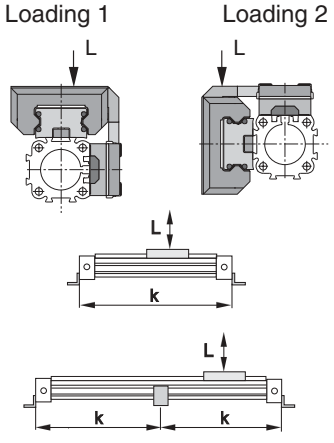
Dimension Table (mm) Series OSP-P PL25, PL32, PL40, PL50

Serie	A	B	J	M	Z	AA	BB	DB	DD	CF	EC	EE	EG	EJ	EK	EL	FF	FS	FT	GG	JJ	ZZ
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 page 54)

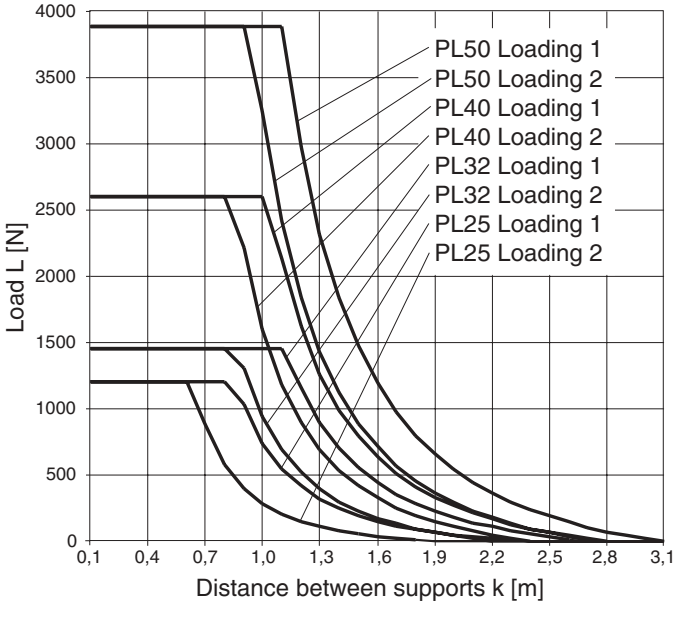
Mid-section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading. A distinction must be drawn between loading 1 and loading 2. Deflection of 0.5 mm max.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



Note:

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

Permissible Unsupported Length PL25, PL32, PL40 and PL50

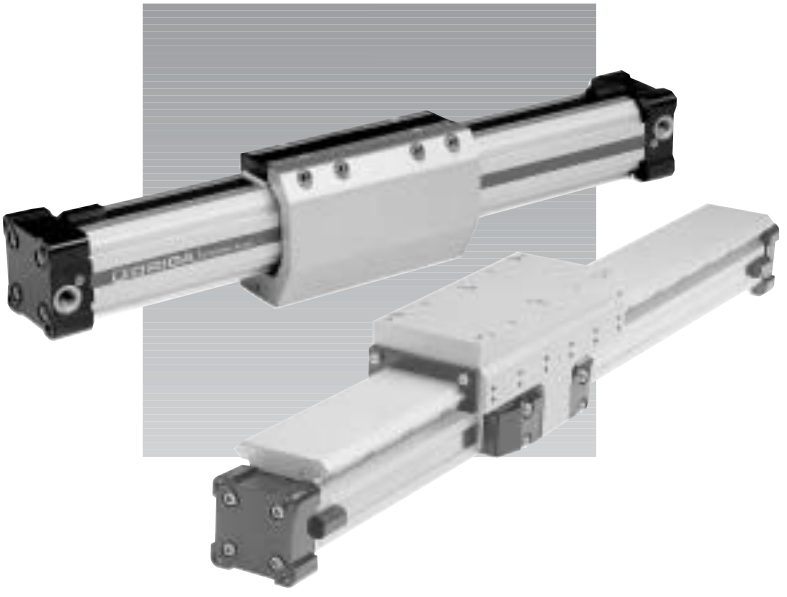


PNEUMATIC
GROUP

Brakes

ORIGA SYSTEM PLUS

HOLDING DEVICES AND BRAKES FOR OSP-P



HOERBIGER
ORIGA

OSP
ORIGA
SYSTEM
PLUS

Holding Devices and Brakes

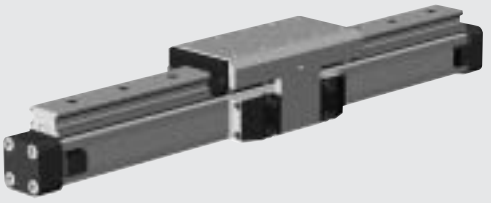
Holding Device
for pneumatic linear drive
Series OSP-P
Piston diameters 25 - 80 mm.
See page 37

Versions:

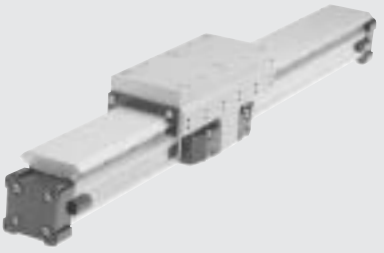
- ACTIVE Brake
- Plain bearing guide with integrated Holding Device
- Aluminium roller guide with integrated Holding Device
- Plain bearing guide with PASSIVE Brake
- Aluminium roller guide with PASSIVE Brake

Slideline with Brake
Plain bearing guide Slideline - SL
with integrated Active Brake
Piston diameters 25 - 50 mm.
See page 23

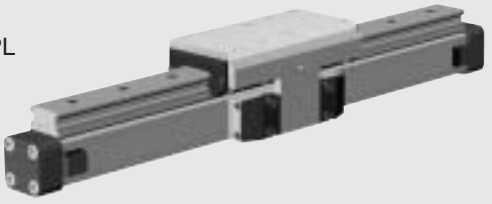
Proline with Brake
Aluminium roller guide
Proline - PL with
integrated Active Brake
Piston diameters 25 - 50 mm.
See page 33



Multibrake with Slideline
Multi-Brake – Passive Brake
with plainbearing guide
Slideline - SL
Piston diameter 25 - 80 mm.
See page 41



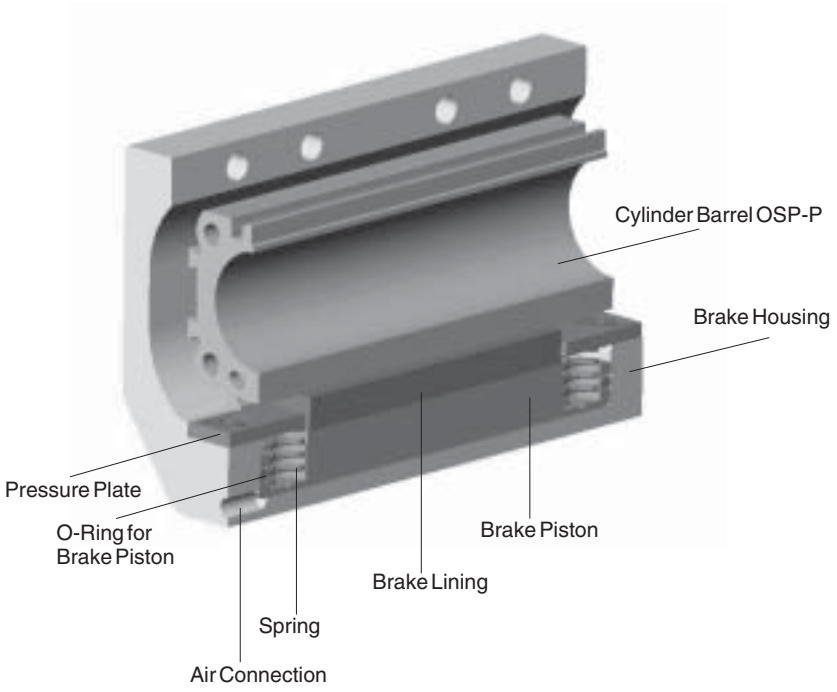
Multibrake with Proline
Multi-Brake – Passive Brake with
aluminium roller guide Proline - PL
Piston diameters 25 - 50 mm.
See page 45



HOERBIGER
ORIGA

HOERBIGER-ORIGA Corporation • 100 West Lake Drive • IL-Glendale Heights, Illinois •
Tel. 630-871-8300 • Fax 630-871-1515 • e-mail: usmarket@hoerbiger-origa.com
Internet http://www.hoerbigeroriga.com

Function



Position Holding Device

OSP
ORIGA SYSTEM PLUS

Series AB 25 to 80
for linear drive
• Series OSP-P

Features:

- Actuated by pressurization
- Released by spring actuation
- Completely stainless version
- Holds position, even under changing load conditions

For further technical data, please refer to the data sheets for linear drives OSP-P (page 13)

Forces and Weights

Series	For linear drive	Max. braking force [N] (1	Brake pad way [mm]	Mass [kg] Linear drive with brake 0 mm stroke	increase per 100mm stroke	brake*
AB 25	OSP-P25	350	2.5	1.0	0.197	0.35
AB 32	OSP-P32	590	2.5	2.02	0.354	0.58
AB 40	OSP-P40	900	2.5	2.83	0.415	0.88
AB 50	OSP-P50	1400	2.5	5.03	0.566	1.50
AB 63	OSP-P63	2170	3.0	9.45	0.925	3.04
AB 80	OSP-P80	4000	3.0	18.28	1.262	5.82

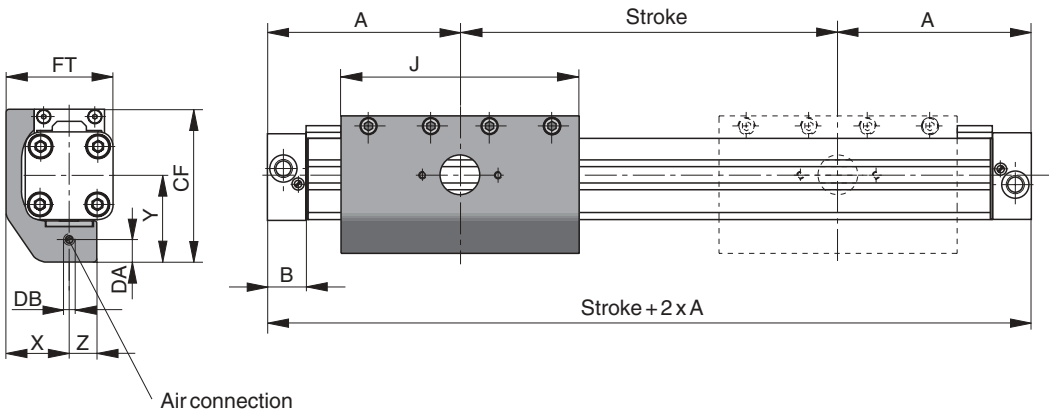
(1 – at 6 bar
both chambers pressurized with 6 bar
Braking surface dry
– oil on the braking surface will reduce the braking force

*** Please Note:**
The mass of the brake has to be added to the total moving mass when using the cushioning diagram.

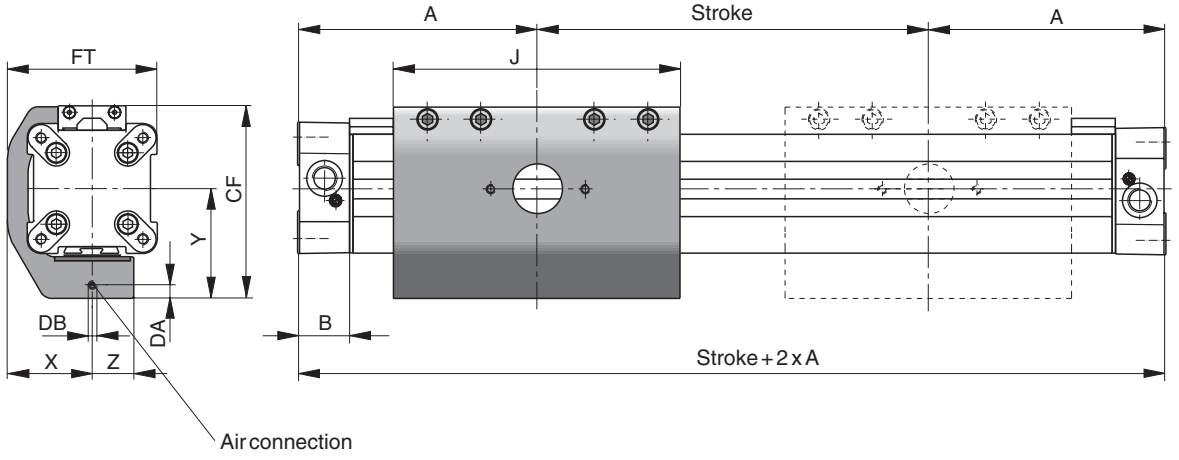
For additional information on loads, forces and moment, please refer to page 14

HOERBIGER ORIGA

Series OSP-P25 and P32 with Holding Device



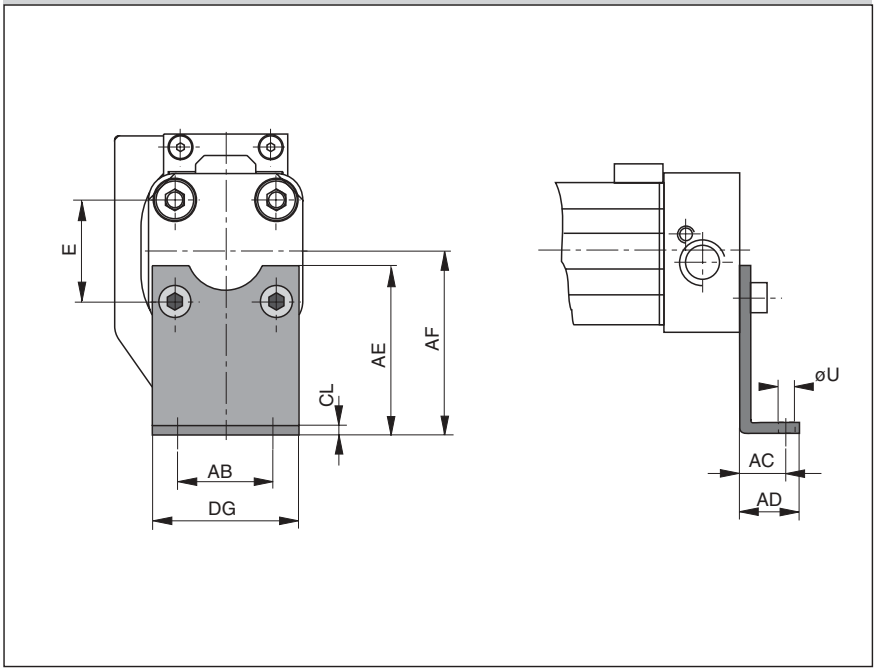
Series OSP-P40, P50, P63, P80 with Holding Device



Dimension Table (mm)

Series	A	B	J	X	Y	Z	CF	DA	DB	FT
AB 25	100	22	117	29.5	43	13	74	4	M5	50
AB 32	125	25.5	151.4	36	50	15	88	4	M5	62
AB 40	150	28	151.4	45	58	22	102	7	M5	79.5
AB 50	175	33	200	54	69.5	23	118.5	7.5	M5	97.5
AB 63	215	38	256	67	88	28	151	9	G1/8	120
AB 80	260	47	348	83	105	32	185	10	G1/8	149

Series OSP – P25 and P32 with Holding Device: Type A3



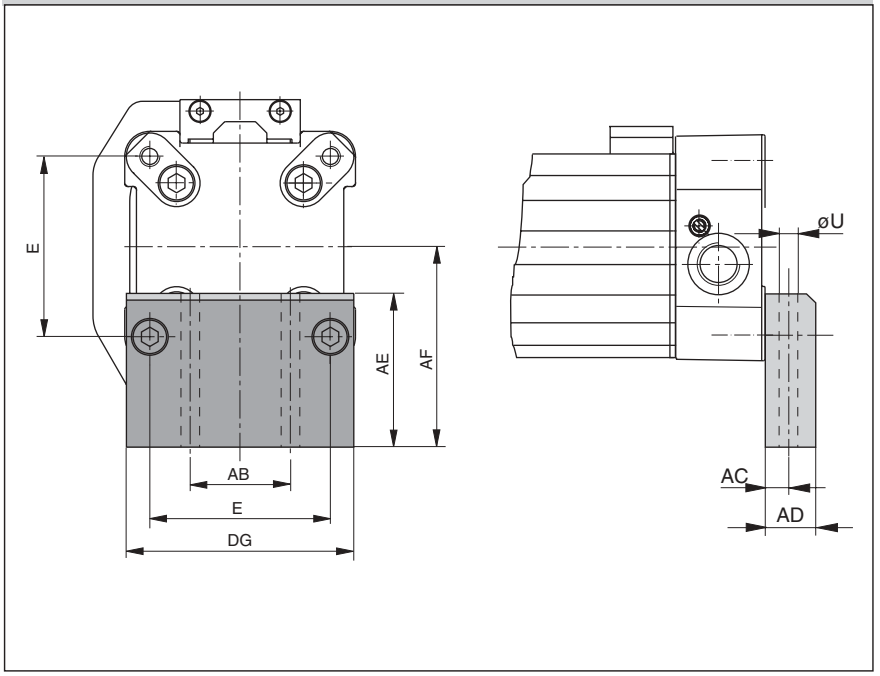
End Cap Mountings

On the end-face of each cylinder end cap there are four threaded holes for mounting the cylinder. The hole layout is square, so that the mounting can be fitted to the bottom, top or either side.

Material: Series OSP-P25, P32: Galvanized steel

The mountings are supplied in pairs.

Series OSP – P40 , P50, P63, P80 with Holding Device AB: Type C3



Material: Series OSP-P40,P50, P63, P80: Anodized aluminium

The mountings are supplied in pairs.

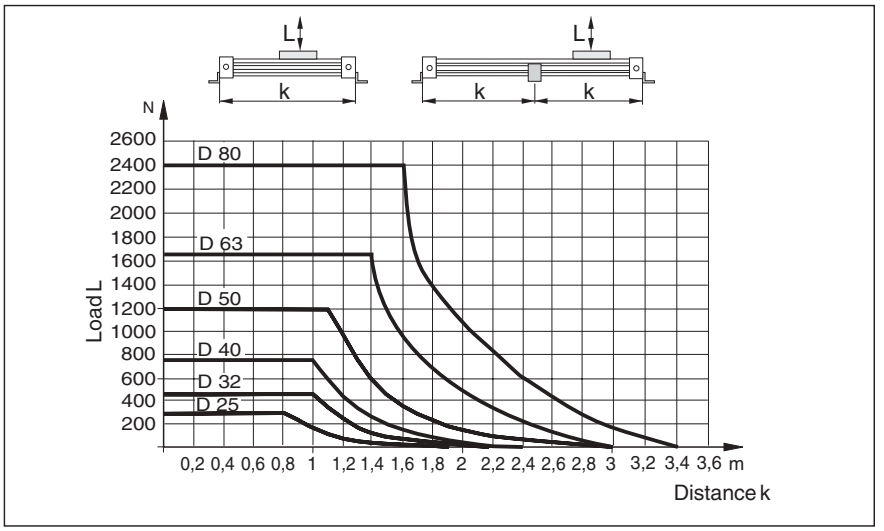
Stainless steel version on request.

Dimension Table (mm)

Series	E	øU	AB	AC	AD	AE	AF	CL	DG	Order No. Type A3	Type C3
AB 25	27	5.8	27	16	22	45	49	2.5	39	**2060**	**–**
AB 32	36	6.6	36	18	26	42	52	3	50	**3060**	**–**
AB 40	54	9	30	12.5	24	46	60	–	68	**–**	**20339**
AB 50	70	9	40	12.5	24	54	72	–	86	**–**	**20350**
AB 63	78	11	48	15	30	76	93	–	104	**–**	**20821**
AB 80	96	14	60	17.5	35	88	110	–	130	**–**	**20822**

Mid Section Support

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. Deflection of 0.5mm max. between supports is permissible.
The mid section supports are attached to the dovetail rails, and can take axial loads.



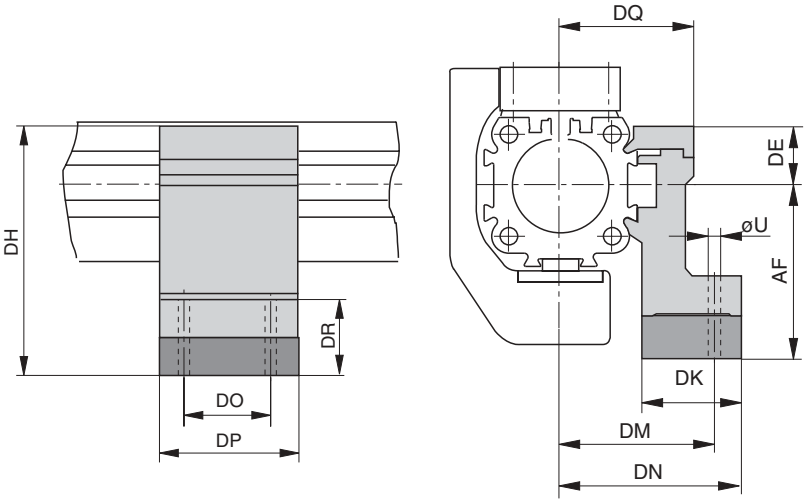
Mid Section Supports

Note to Type E3:

Mid-section supports can only be mounted opposite of the brake housing.

Stainless steel version available on request.

Series OSP-P25 to P80 with Holding Device: Type E3
(Mounting from above / below with through-bolt)



Dimension Table (mm)

Series	U	AF	DE	DH	DK	DM	DN	DO	DP	DQ	DR	Order No. Type 3
AB 25	5,5	49	16	65	26	40	47,5	36	50	34,5	35	**20353**
AB 32	5,5	52	16	68	27	46	54,5	36	50	40,5	32	**20356**
AB 40	7	60	23	83	34	53	60	45	60	45	32	**20359**
AB 50	7	72	23	95	34	59	67	45	60	52	31	**20362**
AB 63	9	93	34	127	44	73	83	45	65	63	48	**20453**
AB 80	11	110	39,5	149,5	63	97	112	55	80	81	53	**20819**

Accessories for linear drives with Holding Device – please order separately

Description	For details information, see page
Clevis mounting	**51**
Adaptor profile	**58**
T-Nut profile	**59**
Sensors (can **only** be mounted opposite of the brake housing)	**62**
Displacement measuring system SFI	**66**

Multi-Brake

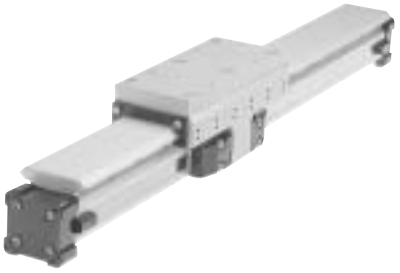
with plain bearing guide Slideline SL

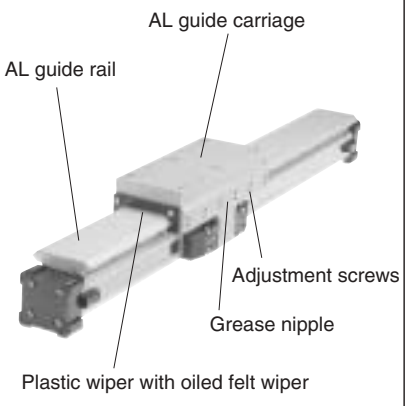
OSP — ORIGA SYSTEM PLUS

Series MB-SL 25 to 80
for Linear Drive
• Series OSP-P

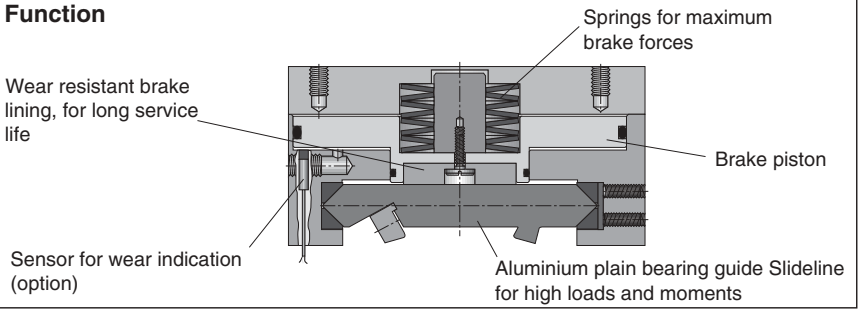
Versions

for pneumatic Linear Drive:
Series OSP-P

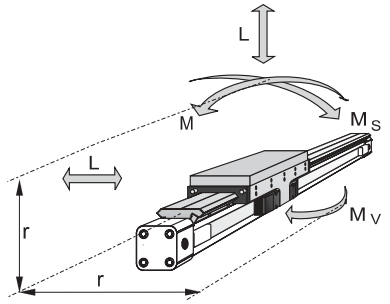




Function



Loads, Forces and Momentshe



Technical Data:

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

Load and moment data are based on speeds v < 0.2 m/s.

Operating pressure 4,5 - 8 bar
A pressure of 4,5 bar is required to release the brake.

For further technical information, please refer to the data sheets for linear drives OSP-P (page 13)

Features:

- Brake operated by spring actuation
- Brake release by pressurization
- Corrosion resistant as standard
- Optional sensor to indicate brake lining wear
- Anodized aluminium rail, with prism shaped slide elements
- Adjustable plastic slide elements
- Composite sealing system with plastic and felt wiper elements to remove dirt and lubricate the slideway
- Replenishable guide lubrication by integrated grease nipples
- Blocking function in case of pressure loss
- Intermediate stops possible

Function:

The Multi-Brake is a passive device. When the air pressure is removed the brake is actuated and movement of the cylinder is blocked. The brake is released by pressurization.
The high friction, wear resistant brake linings allow the Multi-Brake to be used as a dynamic brake to stop cylinder movement in the shortest possible time. The powerful springs also allow the Multi-Brake to be used effectively in positioning applications.

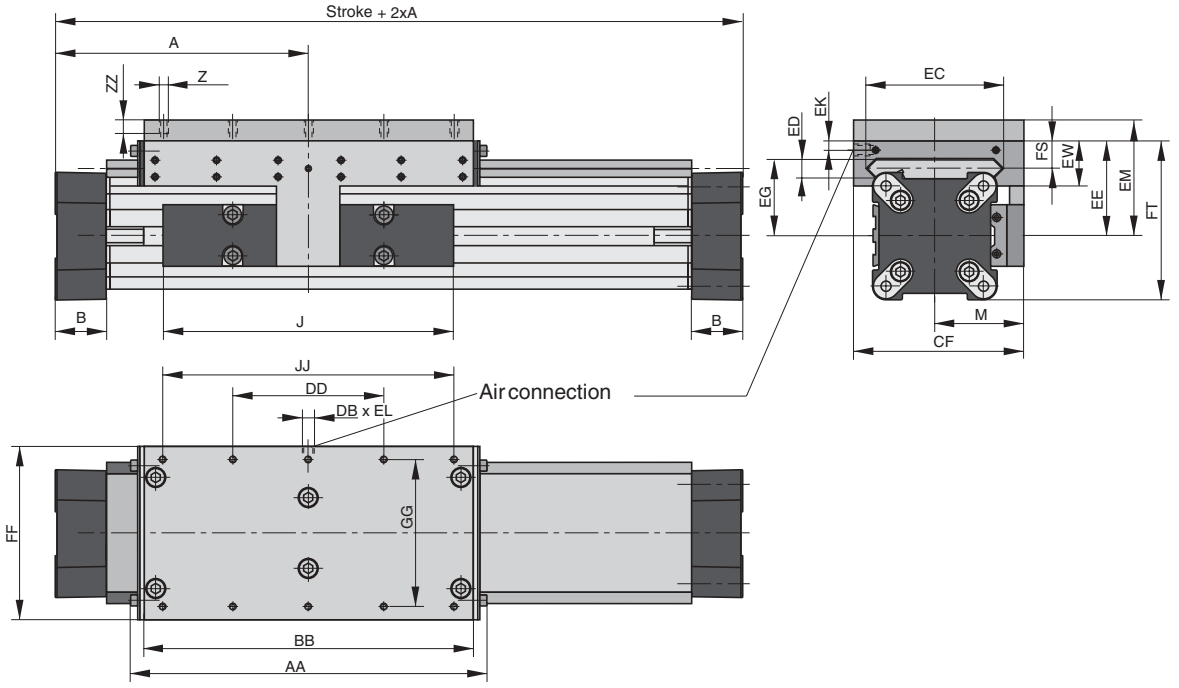
Series	For linear drive	Max. moments [Nm] M	Ms	Mv	Max. loads [N] L	Max. brake force [N] [1]	Mass of linear drive with guide [kg] with 0 mm stroke	increase pro 100 mm str.	Mass* guide carriage [kg]
MB-SL 25	OSP-P25	34	14	34	675	470	2.04	0.39	1.10
MB-SL 32	OSP-P32	60	29	60	925	790	3.82	0.65	1.79
MB-SL 40	OSP-P40	110	50	110	1500	1200	5.16	0.78	2.34
MB-SL 50	OSP-P50	180	77	180	2000	1870	8.29	0.97	3.63
MB-SL 63	OSP-P63	260	120	260	2500	2900	13.31	1.47	4.97
MB-SL 80	OSP-P80	260	120	260	2500	2900	17.36	1.81	4.97

[1] Braking surface dry – oil on the braking surface will reduce the braking force

* **Please note:**
in the cushioning diagram, the mass of the guide carriage has to be added to the total moving mass.

HOERBIGER ORIGA

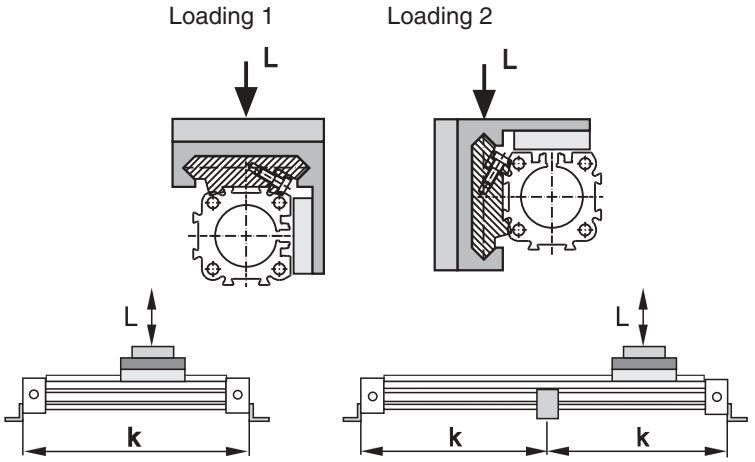
Series OSP-P with Passive Brake MB



Dimension Table (mm)

Series	A	B	J	M	Z	AA	BB	DB	DD	CF	EC	ED	EE	EG	EK	EL	EM	EW	FF	FT	FS	GG	JJ	ZZ
MB-SL 25	100	22	117	40,5	M6	162	142	M5	60	72.5	47	12	53	39	9	5	73	30	64	73.5	20	50	120	12
MB-SL 32	125	25.5	152	49	M6	205	185	G1/8	80	91	67	14	62	48	7	10	82	33	84	88	21	64	160	12
MB-SL 40	150	28	152	55	M6	240	220	G1/8	100	102	77	14	64	50	6.5	10	84	34	94	98.5	21.5	78	200	12
MB-SL 50	175	33	200	62	M6	284	264	G1/8	120	117	94	14	75	56	10	12	95	39	110	118.5	26	90	240	12
MB-SL 63	215	38	256	79	M8	312	292	G1/8	130	152	116	18	86	66	11	12	106	46	152	139	29	120	260	13
MB-SL 80	260	47	348	96	M8	312	292	G1/8	130	169	116	18	99	79	11	12	119	46	152	165	29	120	260	13

Loading



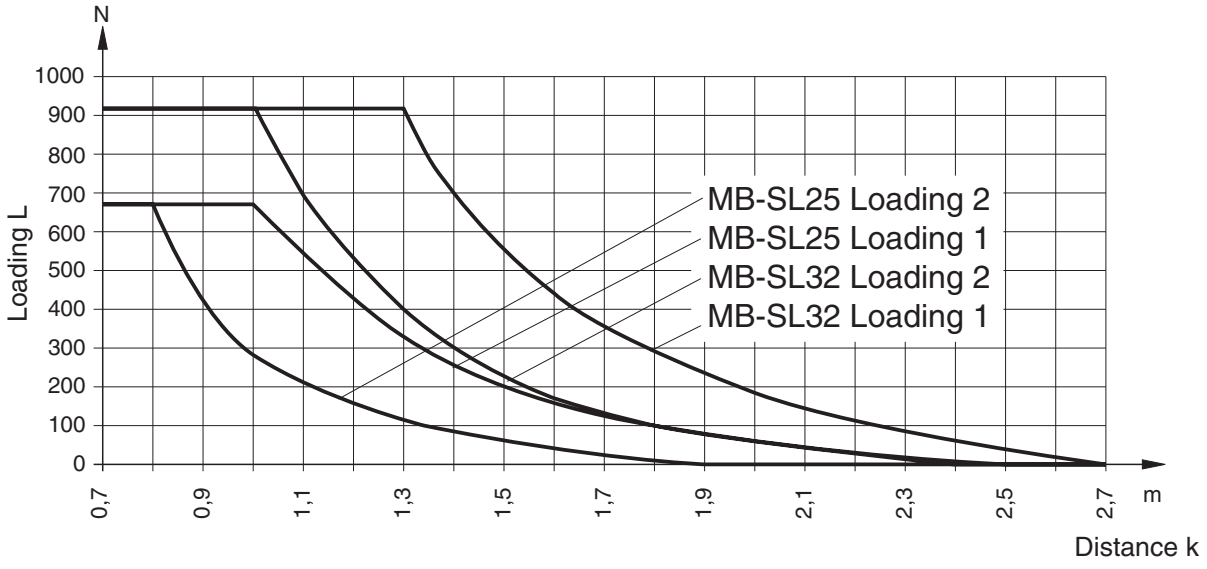
Mid Section Support

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.

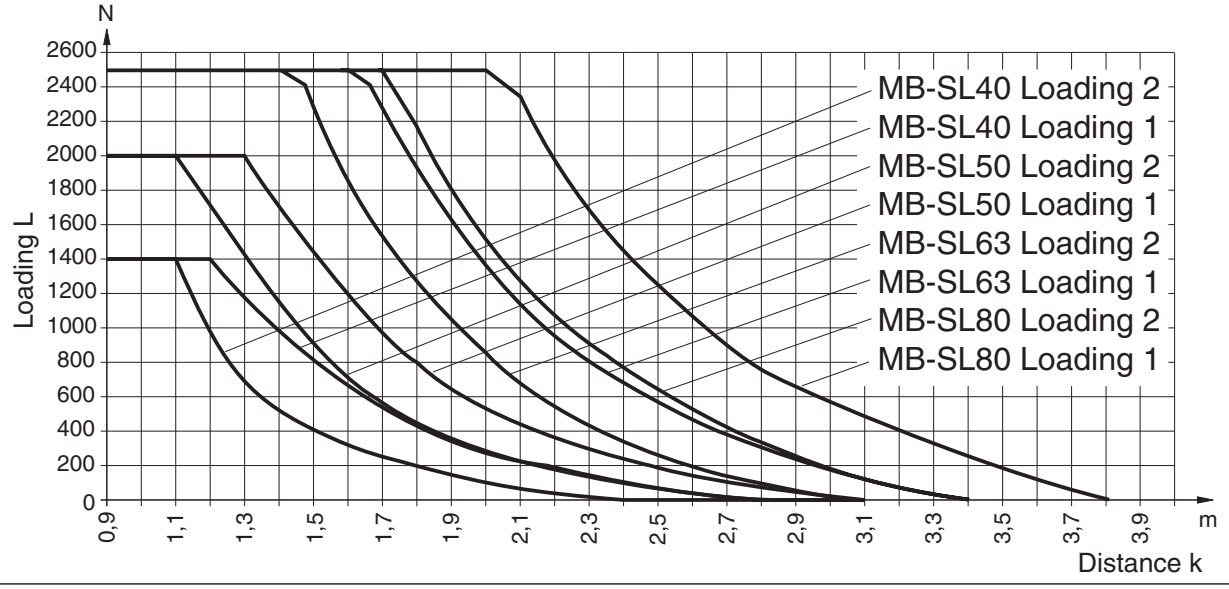
Note:

For speeds v > 0,5 m/s the distance between supports should not exceed 1 m.

Permissible Unsupported Length MB-SL25, MB-SL32

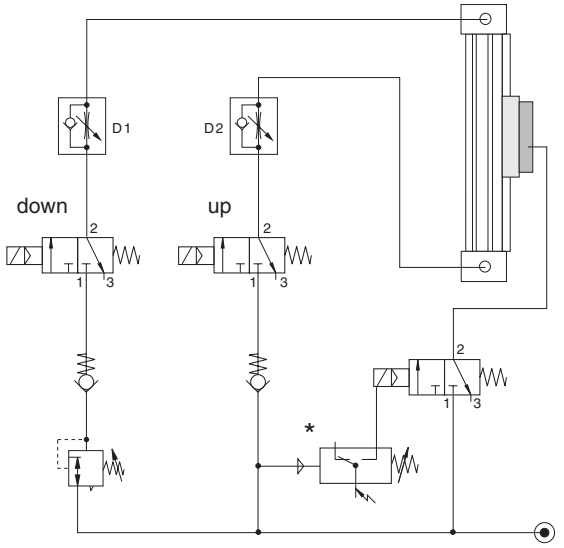


Permissible Unsupported Length MB-SL40, MB-SL50, MB-SL63 und MB-SL80

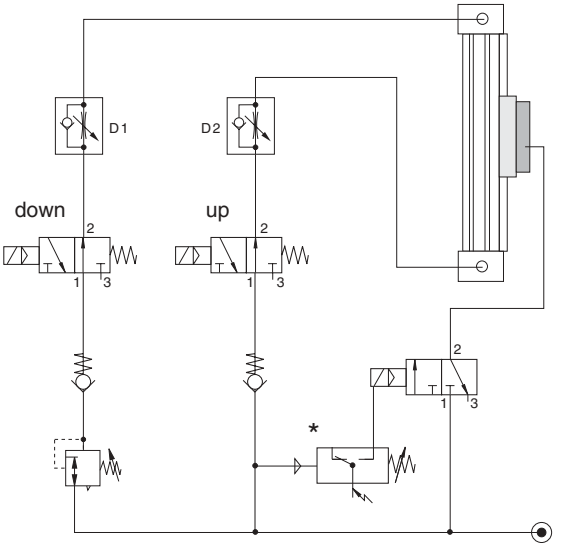


Application Example - Vertical Application

Control of a cylinder with 3/2 way valves.
Basic position – **exhausted**



Control of a cylinder with 3/2 way valves.
Basic position – **pressurized**



Control Examples

Under normal operating circumstances the pressure switch is closed and the air flows through the 3/2 way solenoid valves from port 1 to 2, thus lifting the brake from the rail (operating condition). The brake is pressurized by means of a 3/2 way valve in combination with a pressure switch. When there is a pressure loss, the brake is actuated by the pressure switch.
When the air pressure is restored to both cylinder chambers, the brake is lifted and the linear drive can be moved again.

The speed regulating valves D1 and D2 control the speed of the linear drive, and have no influence on the brake. The two non-return valves give the system a higher stability.

The pressure regulating valve is used to compensate for the downward force in this vertical application.

Please note:
Before the brake is lifted, make sure that both air chambers of the linear drive are pressurized. Small diameter tubing, fittings and valves with a nominal diameter, and tubing that is too long all change the reaction time of the brake!

* **Tip:**
The pressure switch actuates the brake when the pressure drops below the set value.

For accessories, such as tubing and fittings, please refer to our separate catalogue.

Required Components

Way Valves
Port size
M5
G1/8
G1/4
G1/2
Pressure Regulating Valve
G1/8 - G3/8
P/E-Converter
Non-Return Valves
G1/8, G1/4
G3/8
Screw-in Speed Regulating Valves
M5 - G1/4

Multi-Brake

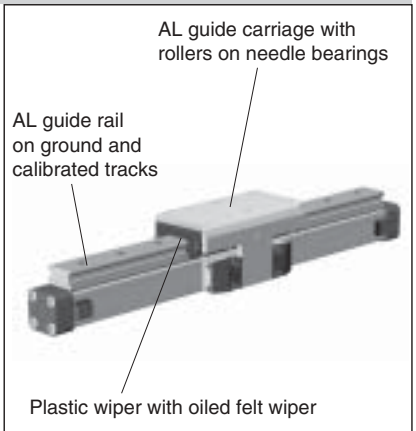
with Aluminium Roller Guide Proline PL

OSP
ORIGA SYSTEM PLUS

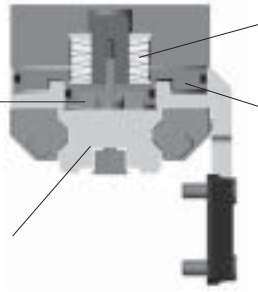
Series MB-PL 25 to 50
for Linear Drive
· Series OSP-P

Versions

for pneumatic Linear Drive:
Series OSP-P



Function



Features:

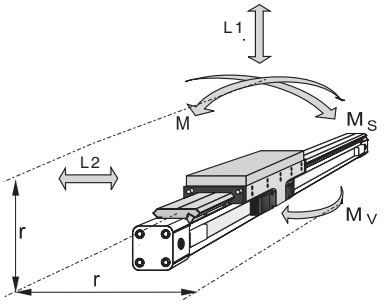
- Brake operated by spring actuation
- Brake release by pressurization
- Corrosion resistant as standard
- Optional sensor to indicate brake lining wear
- Composite sealing system with plastic and felt wiper elements to remove dirt and lubricate the slideway
- Blocking function in case of pressure loss
- Intermediate stops possible

Function:

The Multi-Brake is a passive device. When the air pressure is removed the brake is actuated and movement of the cylinder is blocked. The brake is released by pressurization.
The high friction, wear resistant brake linings allow the Multi-Brake to be used as a dynamic brake to stop cylinder movement in the shortest possible time. The powerful springs also allow the Multi-Brake to be used effectively in positioning applications.

Operating Pressure 4,5 - 8 bar.
A pressure of min. 4,5 bar release the brake.

Loads, Forces and Moments



Technical Data

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

$$\frac{M}{M_{max}} + \frac{M_S}{M_{S\,max}} + \frac{M_V}{M_{V\,max}} + \frac{L_1}{L_{1max}} + \frac{L_2}{L_{2max}} \leq 1$$

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.

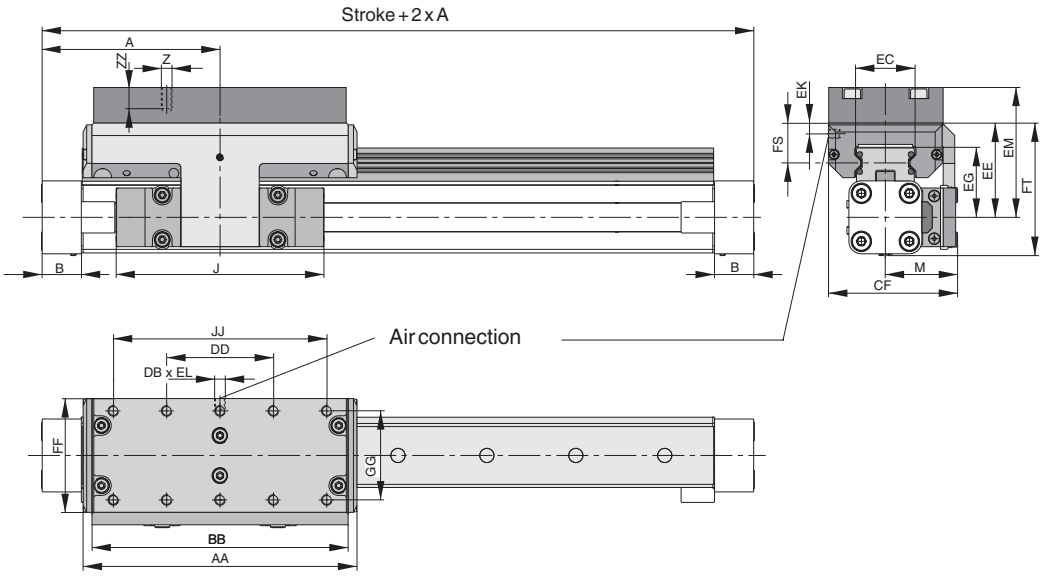
Series	For linear drive	Max. moments [Nm] M	Ms	Mv	Max. loads [N] L1, L2	Max. brake force [N] 1)	Mass of linear drive with guide [kg] with 0 mm stroke	increase pro 100 mm stroke	Mass* guide carriage [kg]
MB-PL 25	OSP-P25	55	23	55	1210	315	2.14	0.40	1.24
MB-PL 32	OSP-P32	91	36	91	1460	490	4.08	0.62	2.02
MB-PL 40	OSP-P40	198	72	198	2600	715	5.46	0.70	2.82
MB-PL 50	OSP-P50	313	139	313	3890	1100	8.60	0.95	4.07

1) Braking surface dry – oil on the braking surface will reduce the braking force

* **Please note:**
In the cushioning diagram, the mass of the guide carriage has to be added to the total moving mass.

HOERBIGER ORIGA

Series OSP-P with Passive Brake MB-PL



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

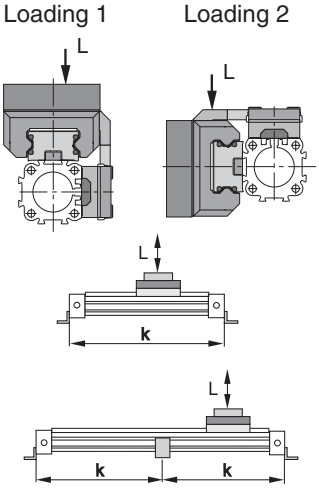
Series	A	B	J	M	Z	AA	BB	DB	DD	CF	EC	EE	EG	EK	EL	EM	FF	FS	FT	GG	JJ	ZZ
MB-PL25	100	22	117	40.5	M6	154	144	M5	60	72.5	32.5	53	39	9	5	73	64	23	73.5	50	120	12
MB-PL32	125	25.5	152	49	M6	197	187	G1/8	80	91	42	62	48	7	10	82	84	25	88	64	160	12
MB-PL40	150	28	152	55	M6	232	222	G1/8	100	102	47	64	50.5	6.5	10	84	94	23.5	98.5	78	200	12
MB-PL50	175	33	200	62	M6	276	266	G1/8	120	117	63	75	57	10	12	95	110	29	118.5	90	240	16

Mid Section Support

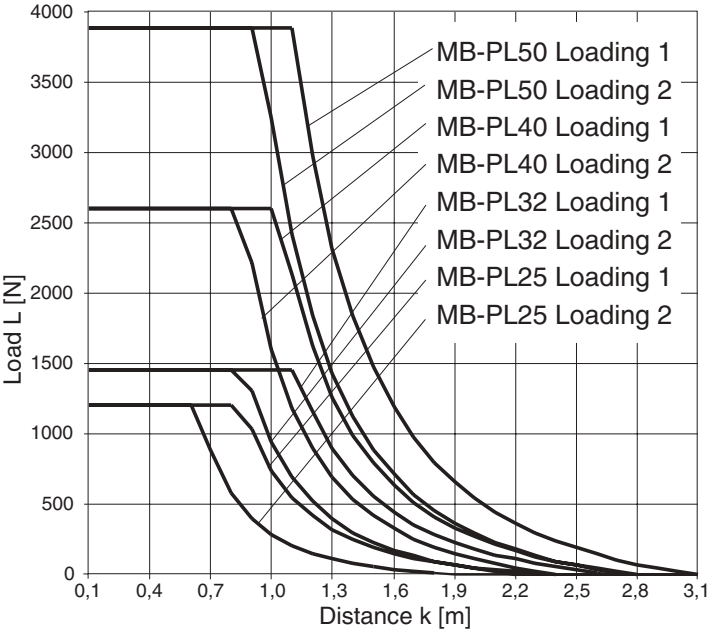
(for versions see page 56)
Mid-section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading. A distinction must be drawn between loading 1 and loading 2. 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.

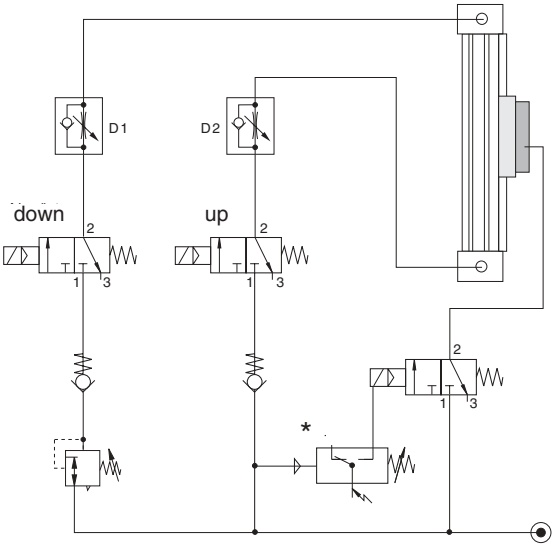


Permissible Unsupported Length OSP-P MB-PL25, MB-PL32, MB-PL40, MB-PL50

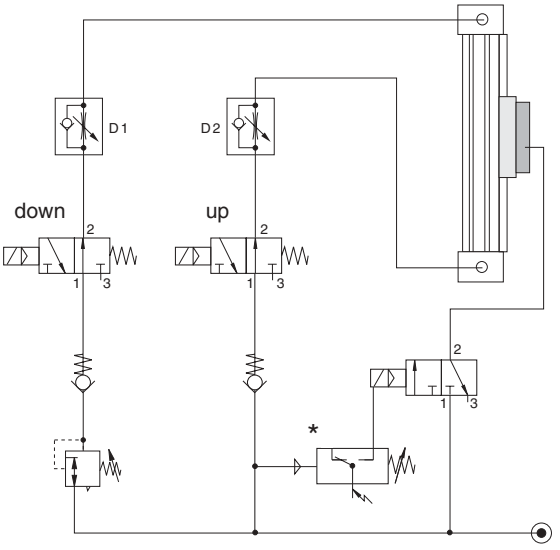


Application Example - Vertical Application

Control of a cylinder with 3/2 way valves.
Basic position – **exhausted**



Control of a cylinder with 3/2 way valves.
Basic position – **pressurized**



Control Examples

Under normal operating circumstances the pressure switch is closed and the air flows through the 3/2 way solenoid valves from port 1 to 2, thus lifting the brake from the rail (operating condition). The brake is pressurized by means of a 3/2 way valve in combination with a pressure switch. When there is a pressure loss, the brake is actuated by the pressure switch.
When the air pressure is restored to both cylinder chambers, the brake is lifted and the linear drive can be moved again.

The speed regulating valves D1 and D2 control the speed of the linear drive, and have no influence on the brake. The two non-return valves give the system a higher stability.

The pressure regulating valve is used to compensate for the downward force in this vertical application.

Please note:
Before the brake is lifted, make sure that both air chambers of the linear drive are pressurized. Small diameter tubing, fittings and valves with a nominal diameter, and tubing that is too long all change the reaction time of the brake!

*** Tip:**
The pressure switch actuates the brake when the pressure drops below the set value.

Required Components

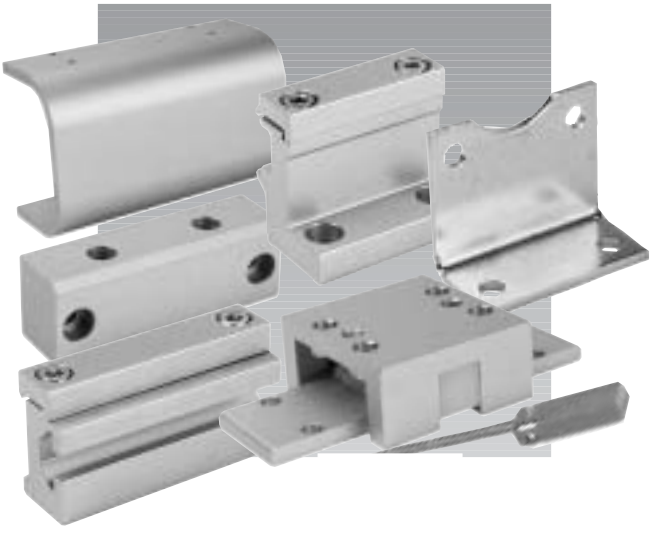
Way Valves
Port size
M5
G1/8
G1/4
G1/2
Pressure Regulating Valve
G1/8 - G3/8
P/E-Converter
Non-Return Valves
G1/8, G1/4
G3/8
Screw-in Speed Regulating Valves
M5 - G1/4

PNEUMATIC
GROUP

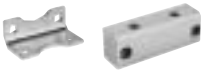
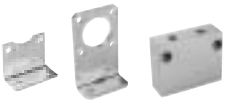
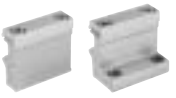
OSP

ORIGA SYSTEM PLUS

ACCESSORIES FOR OSP-P LINEAR DRIVE MOUNTINGS, PROXIMITY SENSORS



HOERBIGER
ORIGA

Linear Drive Acccessories for Series OSP-P	
Description	Page
Clevis Mounting 	51
End Cap Mountings 	52
End Cap Mountings (for Linear Drives with guides) 	55
Mid-Section Support 	53
Mid-Section Support (for Linear Drives with guides) 	56
Inversion Mounting 	57
Adaptor Profile 	58
T-Nut Profile 	59
Shock Mounts 	61, 62
Wireway Cover 	63
Metric Conversion Fittings 	63
Proximity Sensors 	64, 65

Linear Drive Accessories

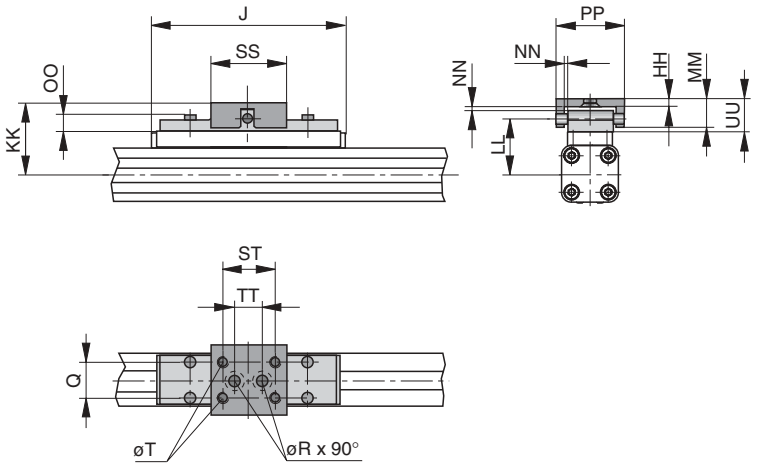
ø 16-80 mm

Clevis Mounting

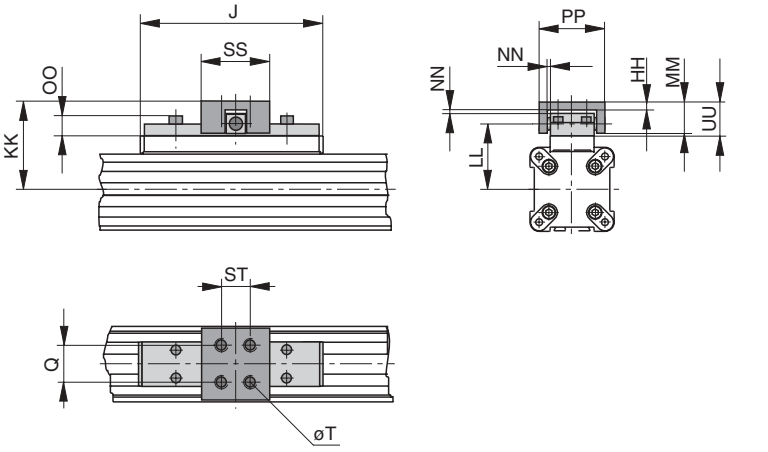
OSP
ORIGA SYSTEM PLUS

For Linear Drive
• For Series OSP-P

Series OSP-P16 to 32



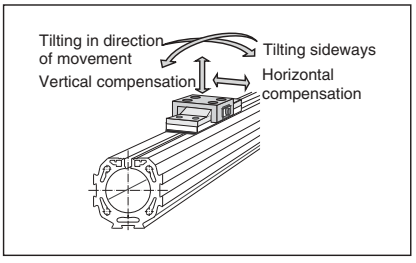
Series OSP-P40 to 80



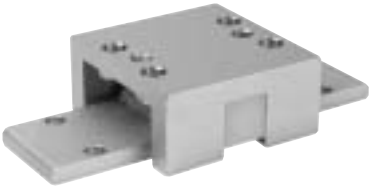
When external guides are used, parallelism deviations can lead to mechanical strain on the piston. This can be avoided by the use of a clevis mounting.
In the drive direction, the mounting has very little play.
Freedom of movement is provided as follows:

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

A stainless steel version is also available.



Please note:
When using additional inversion mountings, take into account the dimensions on page 57.



Dimension Table (mm)

Series	J	Q	T	øR	HH	KK	LL	MM	NN*	OO	PP	SS	ST	TT	UU	Order Number
OSP-P16	69	10	M4	4.5	3	34	26.6	10	1	8.5	26	28	20	10	11	20462
OSP-P25	117	16	M5	5.5	3.5	52	39	19	2	9	38	40	30	16	21	20005
OSP-P32	152	25	M6	6.6	6	68	50	28	2	13	62	60	46	40	30	20096
OSP-P40	152	25	M6	–	6	74	56	28	2	13	62	60	46	–	30	20024
OSP-P50	200	25	M6	–	6	79	61	28	2	13	62	60	46	–	30	20097
OSP-P63	256	37	M8	–	8	100	76	34	3	17	80	80	65	–	37	20466
OSP-P80	348	38	M10	–	8	122	96	42	3	16	88	90	70	–	42	20477

HOERBIGER ORIGA

Linear Drive Accessories

ø 16-80 mm

End Cap Mountings

OSP
ORIGA SYSTEM PLUS

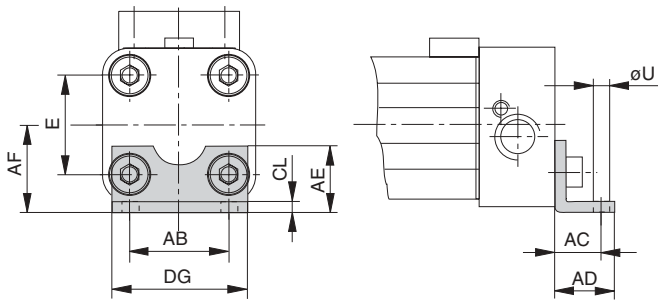
For Linear Drive
• For Series OSP-P

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.

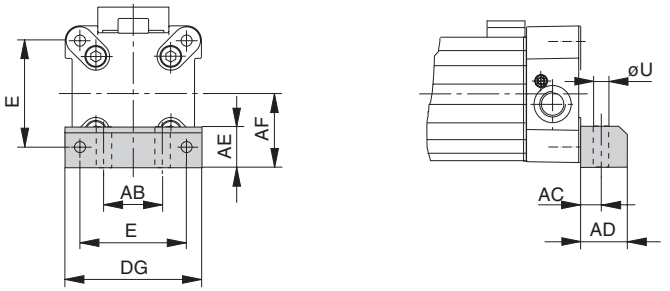
Material:
Series OSP-P16 – P32:
Galvanized steel.
Series OSP-P40 – P50:
Anodized aluminium.

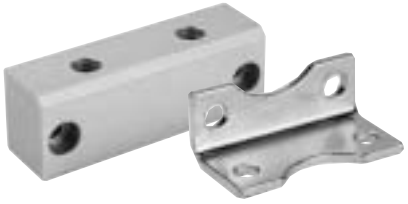
The mountings are supplied in pairs.

Series OSP-P16 to 32: Type A1



Series OSP-P40 to 80: Type C1





Dimension Table (mm)

Series	E	ØU	AB	AC	AD	AE	AF	CL	DG	Order No. (* Type A1	Order No. (* Type C1
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

HOERBIGER ORIGA

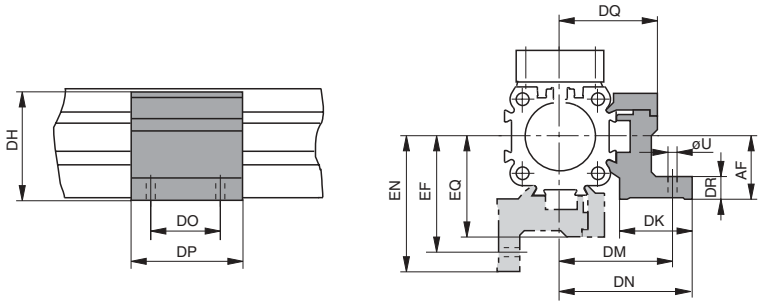
Linear Drive Accessories

ø 16-80 mm
Mid-Section Support

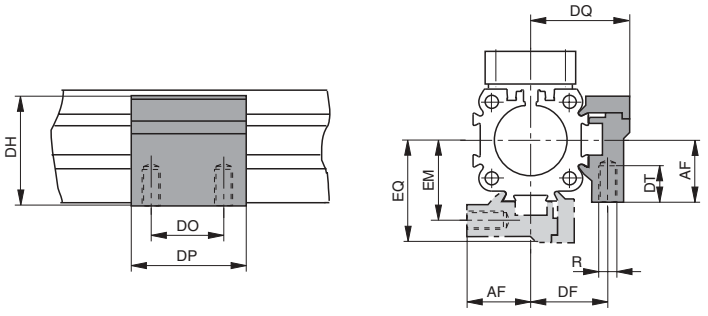
OSP
ORIGA SYSTEM PLUS

For Linear Drive
• For Series OSP-P

Series OSP-16 to 80, Type E1
(Mounting from above / below with 2 through holes)



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



Note on Types E1 and D1:
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.

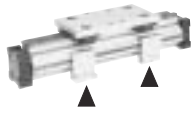
Stainless steel version on demand.

Dimension Table (mm)

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

HOERBIGER ORIGA

Overview

Mounting Type	Type	Type – OSP Guides																
		SLIDELINE PROLINE MULTIBRAKE							POWERSLIDE									
		16 [1]	25	32	40	50	63 [1]	80 [1]	16/25	25/25	25/35	25/44	32/35	32/44	40/44	40/60	50/60	50/76
End cap mounting 	Type A1	X							X									
	Type A2	O	O	O														
	Type A3									O	O		O					
End cap mounting, reinforced 	Type B1		X	X						X	X	X	X	X				
	Type B3								O									
	Type B4											O		O				
End cap mounting 	Type C1				X	X	X	X							X	X	X	X
	Type C2				O	O												
	Type C3						O	O							O		O	
	Type C4															O		O
Mid section support, small	Type D1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mid section support, wide 	Type E1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Type E2	O	O	O	O	O												
	Type E3						O	O	O	O	O		O		O		O	
	Type E4											O		O		O		O

X = carriage mounted in top (12 o'clock position)

O = carriage mounted in lateral (3 or 9 o'clock position)

= available components

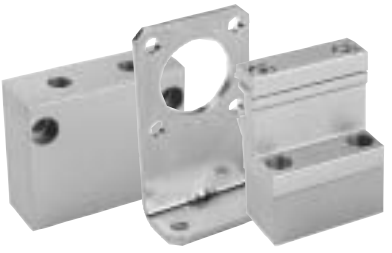
1) = not available for all sizes

Linear Drive Accessories

Mountings for Linear Drives fitted with OSP-guides

OSP — ORIGA — SYSTEM — PLUS

For Linear Drive
• For Series OSP-P



HOERBIGER ORIGA

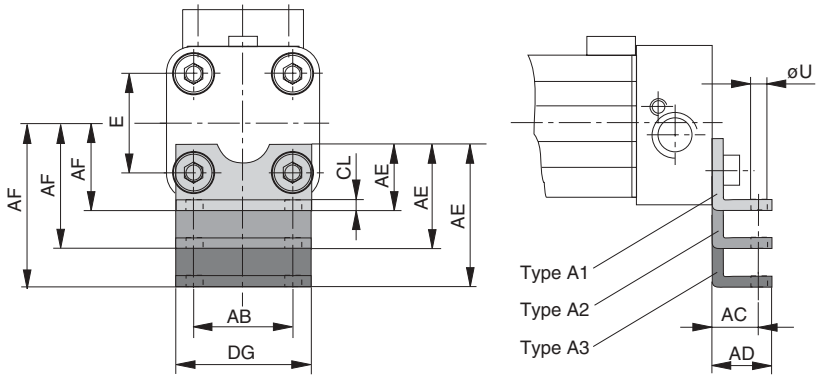
End cap mountings *

Four internal screw threads are located in the end faces of all OSP actuators for mounting the drive unit. End cap mountings may be secured across any two adjacent screws.

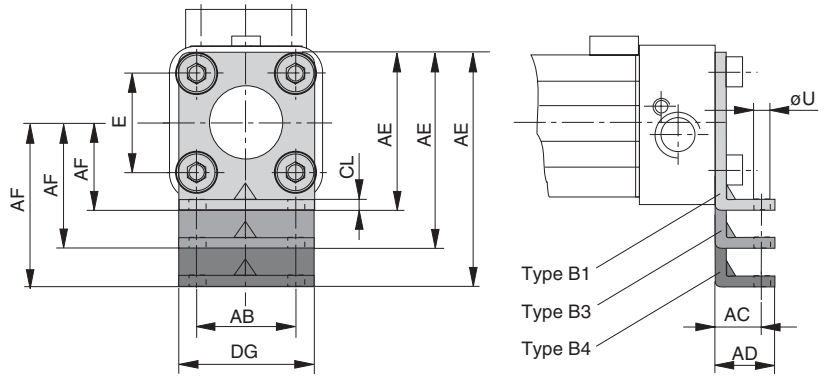
Material: Series OSP-16, 25, 32:
zinc plated steel
Series OSP-40,50, 63, 80:
anodized aluminium

Supplied in pairs.

Series OSP – 16, 25, 32: Type A



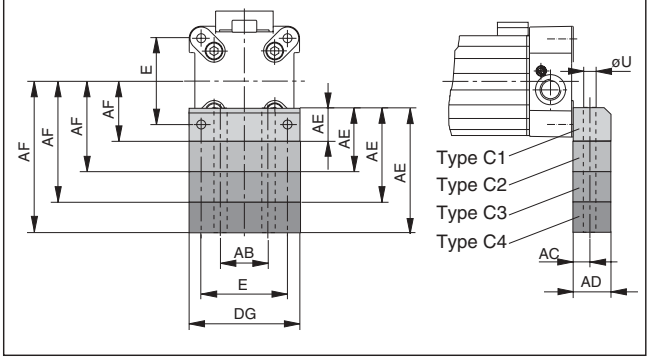
Series OSP – 16, 25, 32: Type B



Dimension Table (mm)
– Dimensions AE and AF (Dependant on the mounting type)

Mount. type	Dimensions **AE** for size							**AF** for size						
	16	**25**	**32**	**40**	**50**	**63**	**80**	**16**	**25**	**32**	**40**	**50**	**63**	**80**
A1	12.5	18	20	–	–	–	–	15	22	30	–	–	–	–
A2	27.5	33	34	–	–	–	–	30	37	44	–	–	–	–
A3	–	45	42	–	–	–	–	–	49	52	–	–	–	–
B1	–	42	55	–	–	–	–	–	22	30	–	–	–	–
B3	55	–	–	–	–	–	–	42	–	–	–	–	–	–
B4	–	80	85	–	–	–	–	–	60	60	–	–	–	–
C1	–	–	–	24	30	40	50	–	–	–	38	48	57	72
C2	–	–	–	37	39	–	–	–	–	–	51	57	–	–
C3	–	–	–	46	54	76	88	–	–	–	60	72	93	110
C4	–	–	–	56	77	–	–	–	–	–	70	95	–	–

Series OSP – 40, 50, 63, 80: Type C

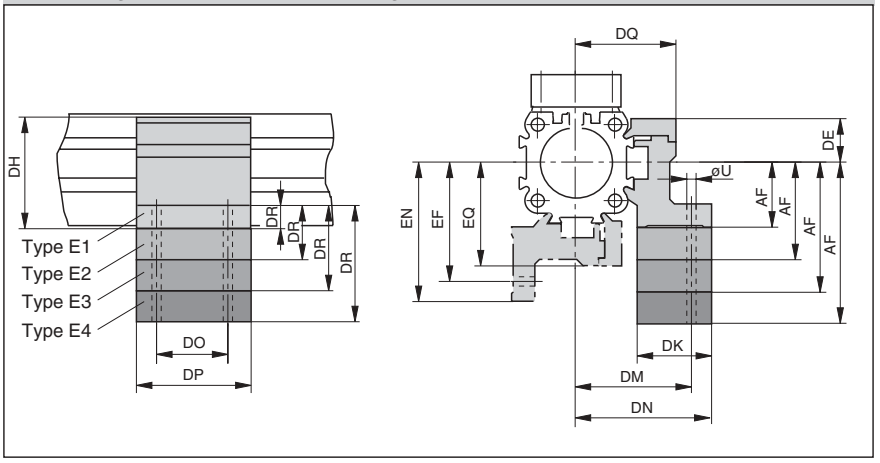


Dimension Table (mm)

Series	E	øU	AB	AC	AD	CL	DG
OSP-P16	18	3.6	18	10	14	1.6	26
OSP-P25	27	5.8	27	16	22	2.5	39
OSP-P32	36	6.6	36	18	26	3	50
OSP-P40	54	9	30	12.5	24	-	68
OSP-P50	70	9	40	12.5	24	-	86
OSP-P63	78	11	48	15	30	-	104
OSP-P80	96	14	60	17.5	35	-	130

* see mounting instructions on page 54

Series OSP-16 to 80: Type E.
(Mounting from above / below using a cap screw)



Mid section supports

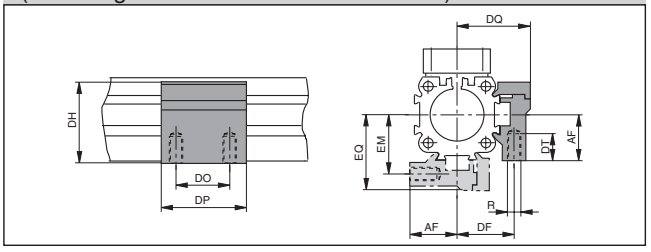
Information regarding type E1 and D1:

Mounting of the mid-section supports is also possible on the lower side of the drive. In this case, please note the new center line dimensions.

See layout information on pages 24, 27, 34, 43, and 46

Stainless steel version on request.

Series OSP-16 to 80: Type D1
(Mounting from below with thread screw)



Dimension Table (mm)
– Dimensions AF and DR (Dependant on the mounting type)

Mount. type	Dimensions **DR** for size							**AF** for size						
	16	**25**	**32**	**40**	**50**	**63**	**80**	**16**	**25**	**32**	**40**	**50**	**63**	**80**
D1	–	–	–	–	–	–	–	15	22	30	38	48	57	72
E1	6	8	10	10	10	12	15	15	22	30	38	48	57	72
E2	21	23	24	23	19	–	–	30	37	44	51	57	–	–
E3	33	35	32	32	34	48	53	42	49	52	60	72	93	110
E4	–	46	40	42	57	–	–	–	60	60	70	95	–	–

Dimension Table (mm)

Series	R	U	DE	DF	DH	DK	DM	DN	DO	DP	DQ	DT	EF	EM	EN	EQ
OSP-P16	M3	3,4	14,2	20	29,2	24	32	36,4	18	30	27	6,5	32	20	36,4	27
OSP-P25	M5	5,5	16	27	38	26	40	47,5	36	50	34,5	10	41,5	28,5	49	36
OSP-P32	M5	5,5	16	33	46	27	46	54,5	36	50	40,5	10	48,5	35,5	57	43
OSP-P40	M6	7	23	35	61	34	53	60	45	60	45	11	56	38	63	48
OSP-P50	M6	7	23	40	71	34	59	67	45	60	52	11	64	45	72	57
OSP-P63	M8	9	34	47,5	91	44	73	83	45	65	63	16	79	53,5	89	69
OSP-P80	M10	11	39,5	60	111,5	63	97	112	55	80	81	25	103	66	118	87

Ordering information for mountings Type A – Type B – Type C – Type D – Type E

Mounting type (versions)	Order No. size						
	16	**25**	**32**	**40**	**50**	**63**	**80**
A1 *)	**20408**	**2010**	**3010**	**–**	**–**	**–**	**–**
A2 *)	**20464**	**2040**	**3040**	**–**	**–**	**–**	**–**
A3 *)	**–**	**2060**	**3060**	**–**	**–**	**–**	**–**
B1 *)	**–**	**20311**	**20313**	**–**	**–**	**–**	**–**
B3 *)	**20465**	**–**	**–**	**–**	**–**	**–**	**–**
B4 *)	**–**	**20312**	**20314**	**–**	**–**	**–**	**–**
C1 *)	**–**	**–**	**–**	**4010**	**5010**	**6010**	**8010**
C2 *)	**–**	**–**	**–**	**20338**	**20349**	**–**	**–**
C3 *)	**–**	**–**	**–**	**20339**	**20350**	**20821**	**20822**
C4 *)	**–**	**–**	**–**	**20340**	**20351**	**–**	**–**
D1	**20434**	**20008**	**20157**	**20027**	**20162**	**20451**	**20480**
E1	**20435**	**20009**	**20158**	**20028**	**20163**	**20452**	**20482**
E2	**20436**	**20352**	**20355**	**20358**	**20361**	**–**	**–**
E3	**20437**	**20353**	**20356**	**20359**	**20362**	**20453**	**20819**
E4	**–**	**20354**	**20357**	**20360**	**20363**	**–**	**–**

(* Pair)

Linear Drive Accessories

ø 16-80 mm

Inversion Mounting

OSP
ORIGA
SYSTEM
PLUS

For Linear Drive
• For Series OSP-P

In dirty environments, or where there are special space problems, inversion of the cylinder is recommended. The inversion bracket transfers the driving force to the opposite side of the cylinder. The size and position of the mounting holes are the same as on the standard cylinder.

Stainless steel version on demand.

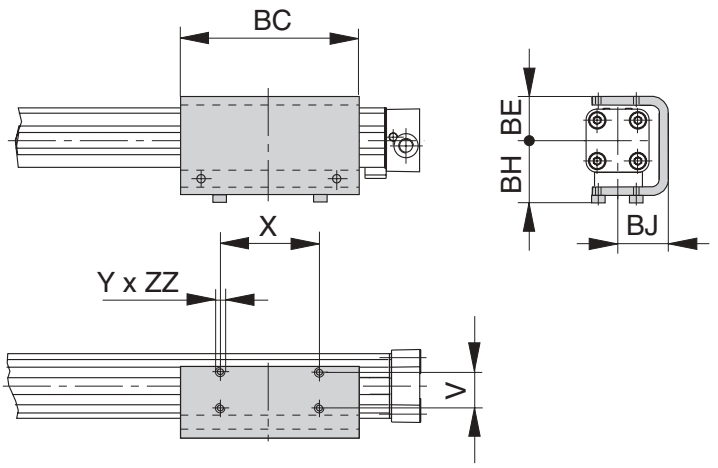
Please note:
Other components of the OSP system such as **mid-section supports, proximity switches** and **the external air passage for the P16,** can still be mounted on the free side of the cylinder.

When combining single end porting with inversion mountings, RS switches can only be mounted directly opposite to the external air-supply profile.

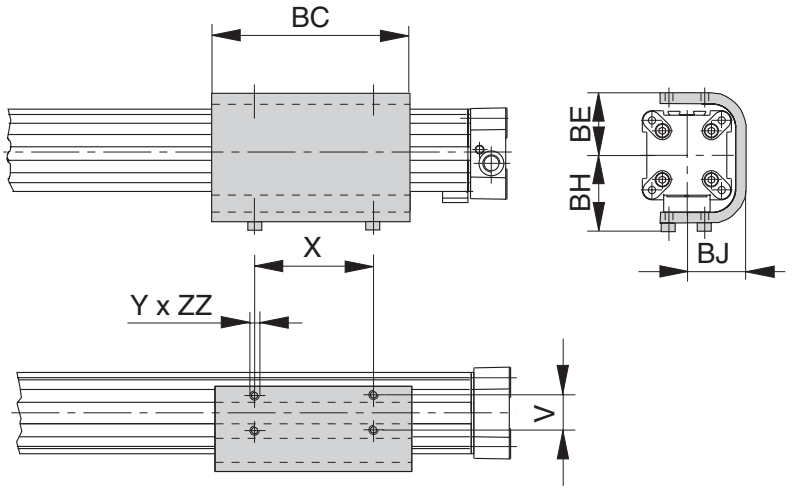
Important Note:

May be used in combination with Clevis Mounting, ref. page 51

Series OSP-16 to 32



Series OSP-40 to 80

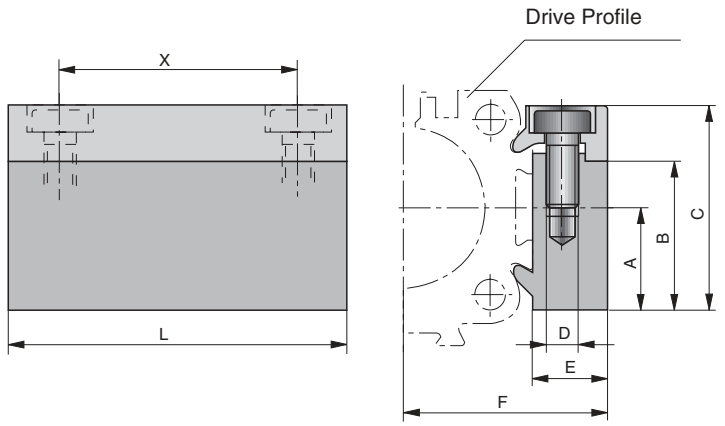


Dimension Table (mm)

Series	V	X	Y	BC	BE	BH	BJ	ZZ	Order No.
OSP-P16	16.5	36	M4	69	23	33	25	4	**20446**
OSP-P25	25	65	M5	117	31	44	33.5	6	**20037**
OSP-P32	27	90	M6	150	38	52	39.5	6	**20161**
OSP-P40	27	90	M6	150	46	60	45	8	**20039**
OSP-P50	27	110	M6	180	55	65	52	8	**20166**
OSP-P63	34	140	M8	255	68	83,5	64	10	**20459**
OSP-P80	36	190	M10	347	88	107,5	82	15	**20490**

HOERBIGER
ORIGA

Dimensions



Linear Drive Accessories

ø 16-50 mm

Adaptor Profile

OSP
ORIGA SYSTEM PLUS

For Linear Drive
- **For Series OSP-P**

Adaptor Profile OSP
- A universal attachment for mounting of valves etc.
- Solid material

Dimension Table (mm)

Series	Order No.	A	B	C	D	E	F	L	X
OSP-P16	N/A	14	20.5	28	M3	12	27	50	38
OSP-P25	20006	16	23	32	M5	10.5	30.5	50	36
OSP-P32	20006	16	23	32	M5	10.5	36.5	50	36
OSP-P40	20025	20	33	43	M6	14	45	80	65
OSP-P50	20025	20	33	43	M6	14	52	80	65

HOERBIGER ORIGA

Linear Drive Accessories

ø 16-50 mm

T-Nut Profile

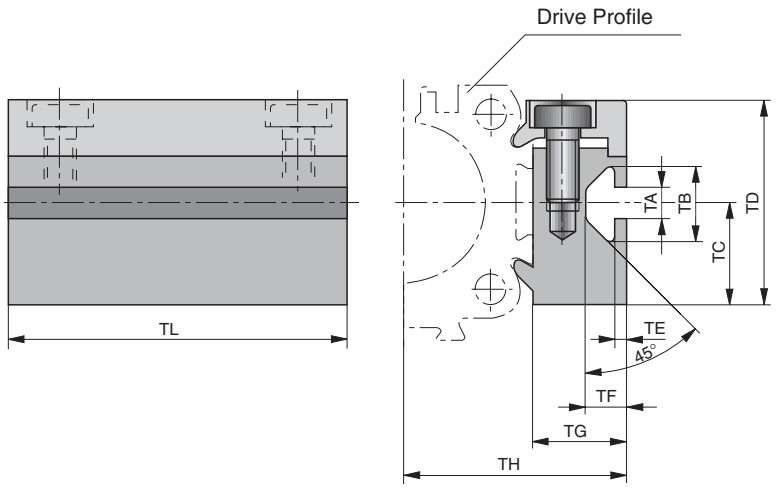
OSP
ORIGA SYSTEM PLUS

For Linear Drive
• For Series OSP-P

T-Nut Profile OSP

• A universal attachment for mounting with standard T-Nuts

Dimensions



Dimension Table (mm)

Series	Order No.	TA	TB	TC	TD	TE	TF	TG	TH	TL
OSP-P16	20433	5	11.5	14	28	1.8	6.4	12	27	50
OSP-P25	20007	5	11.5	16	32	1.8	6.4	14.5	34.5	50
OSP-P32	20007	5	11.5	16	32	1.8	6.4	14.5	40.5	50
OSP-P40	20026	8.2	20	20	43	4.5	12.3	20	51	80
OSP-P50	20026	8.2	20	20	43	4.5	12.3	20	58	80

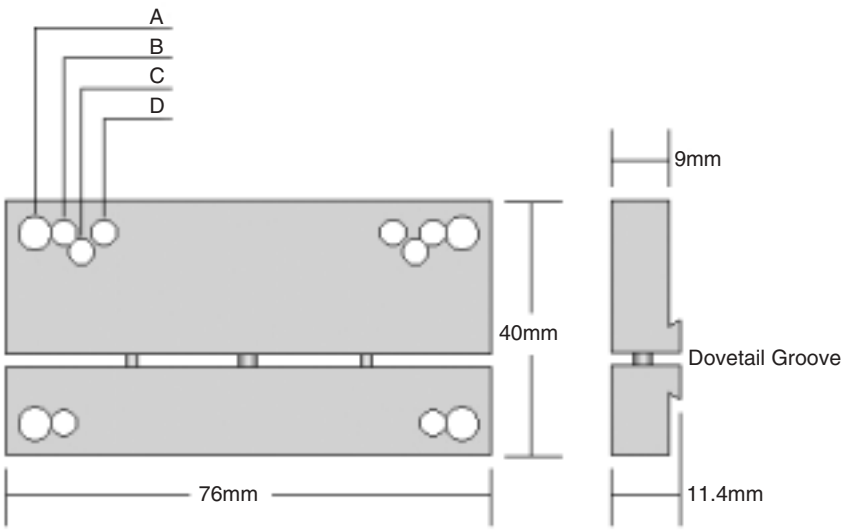
HOERBIGER
ORIGA

Linear Drive Accessories

Valve Mounting Plate

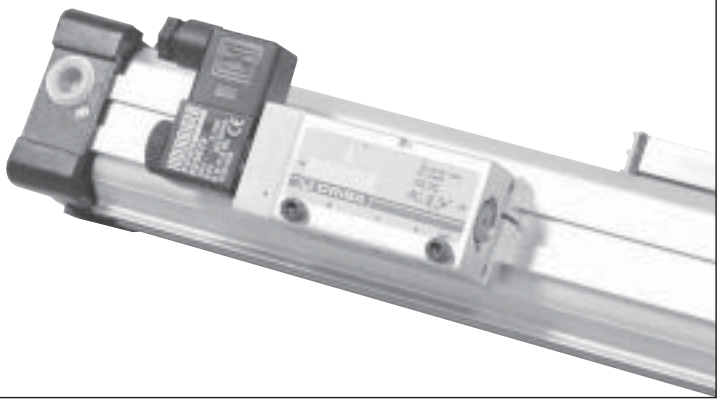
OSP
ORIGA SYSTEM PLUS

Dimensions



Mounting Holes:
A = 5/2-way; 1/4" NPT
B = 5/2-way; 1/8" NPT
C = 3/2-way; 1/4" NPT
D = 3/2-way; 1/8" NPT

Typical Valve Installation Using Valve Mounting Plate



Ordering Information:
Order #: PD 40372

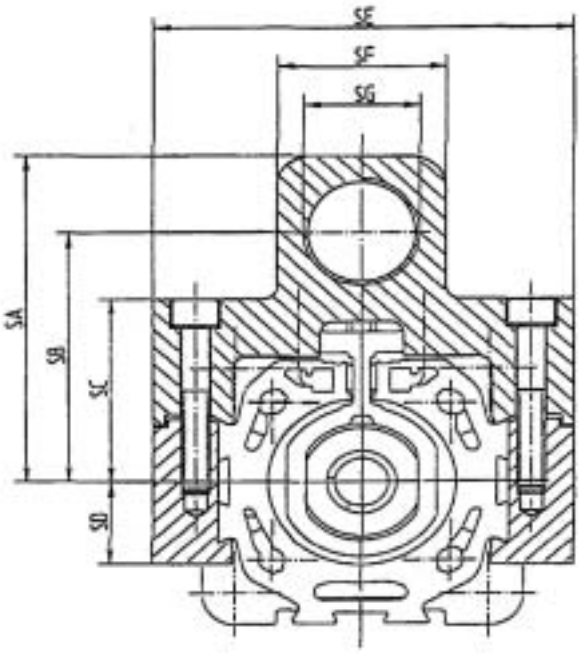
HOERBIGER ORIGA

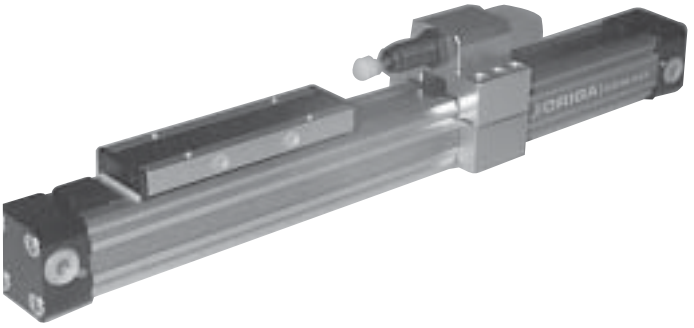
Linear Drive Assembly

Adjustable Shock Mount

OSP
ORIGA SYSTEM PLUS

Dimensions



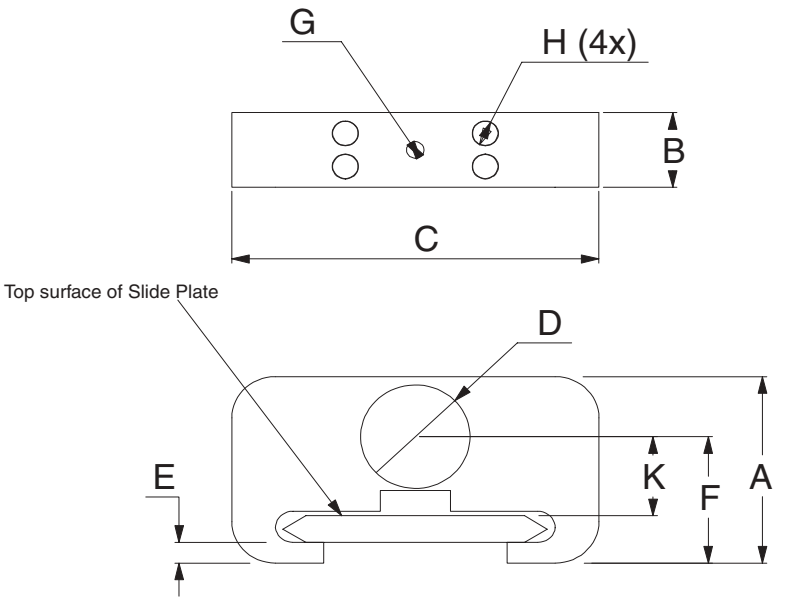


Dimension Table (mm)

Series	Order No.	SA	SB	SC	SD	SE	SF	SG	SH=Length
OSP-25	20169	51	40	31	16	61	33	M14x1.5	36
OSP-32	20173	64	50	38	16	73	36	M20x1.5	36
OSP-40	20170	78	60	44	20	90	36	M25x1.5	42
OSP-50	20174	83	65	49	20	104	36	M25x1.5	42

HOERBIGER ORIGA

Dimensions



Linear Drive Assembly Adjustable Shock Mounts for Power Slide

OSP
ORIGA
SYSTEM
PLUS

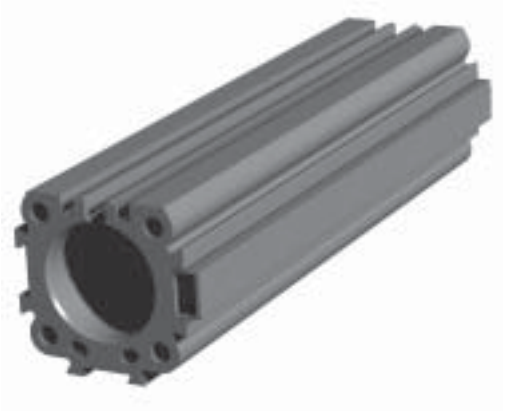
Contact factory with application information and for quote request.

Dimension Table (mm)

Part No.	Bore/Rail	A	B	C	D	E	F	G	H	K
ASM25/32-35	25/35	41.5	13	60	M20x1.5	7.5	27.25	M5	M5	14.8
ASM25/32-44	25/44	41.5	13	60	M20x1.5	7.5	29	M5	M5	15.1
ASM25/32-35	32/35	41.5	13	60	M20x1.5	7.5	27.25	M5	M5	14.8
ASM25/32-44	32/44	41.5	13	60	M20x1.5	7.5	29	M5	M5	15.1
ASM40-44	40/44	45	18	65	1"x12	5	28.5	M6	M6	17.1
ASM40-60	40/60	55	18	84	1"x12	5	30.5	M6	M6	19.1
ASM50-60	50/60	55	18	84	1"x12	5	37.8	M6	M6	26.4
ASM50-76	50/76	55	18	100	1"x12	5	37.8	M6	M6	23.3

HOERBIGER
ORIGA

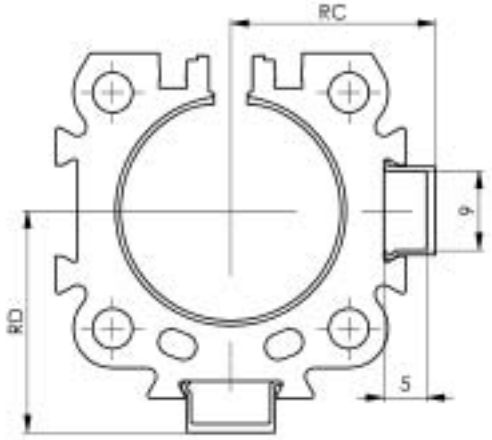
Wireway Cover for OSP-P



OSP
ORIGA SYSTEM PLUS

For clean guidance of sensor cables along the cylinder body.
Contains a maximum of 3 cables with diameter 3 mm.
Material: Plastic
Color: Red
Temperature Range: –10 to +80°C

Dimensions



Dimension Table (mm)

Series	RC	RD	Order No. (mm)
OSP-P16	18.5	19	13039 – 00000
OSP-P25	23.5	25.5	13039 – 00000
OSP-P32	29.5	32.5	13039 – 00000
OSP-P40	34.5	37.5	13039 – 00000
OSP-P50	41.5	46.5	13039 – 00000
OSP-P63	51.5	57.5	13039 – 00000
OSP-P80	64.5	70.5	13039 – 00000

Metric Conversion Fittings

Order Number	Port Size
2521-1/8-02	G1/8 to 1/8" NPT
2521-1/4-04	G1/4 to 1/4" NPT
2521-3/8-06	G3/8 to 3/8" NPT
2521-1/2-08	G1/2 to 1/2" NPT

HOERBIGER ORIGA

Linear Drive Accessories

ø 16-80 mm Proximity Sensors

OSP — ORIGA — SYSTEM — PLUS

For electrical sensing of the carrier position, e.g. at the end positions, proximity sensors may be fitted.

Position sensing is contactless and is based on magnets fitted as standard to the carrier. A yellow LED indicates operating status.

The universal proximity sensors are suitable for all HOERBIGER-ORIGA OSP-Actuators and aluminum profile rod type cylinders.

Piston, speed and switching distance affect signal duration and should be considered in conjunction with the minimum reaction time of ancillary control equipment.

$$\text{Min. reaction time} = \frac{\text{Switching distance}}{\text{Piston speed}}$$

*) other versions on request
**) RS with connector (RS-S)

Characteristics to VDI 3292

Characteristics	Symbol	Unit	Description		
Electrical Characteristics			**Type RS**	**Type ES**	
Operating voltage	U_B	V	10-240 AC/DC (NO) 10-150 AC/DC (NC) 10-70 AC/DC (NC)**	10-30 DC	
Connection			Two wire	Three wire	
Switching function			Normally open (NO) Normally closed (NC)	PNP NPN	closing
Max. permanent switching current	I_{Dmax}	mA	200		200
Max. switching capacity		VA (W)	10 VA		—
Residual voltage at I_{Lmax}		V	<3		<3
Max. current consumption		mA	—		<20
Status indicator			LED, yellow		
Typical switching time		ms	on: <2		on: <2
Switch-off delay		ms	—		ca. 25
Pole reversal			LED does not work		—
Pole reversal protection			-	Built in	
Short circuit protection			-	Built in	
Switchable capacity		µF	0,1 at 100 Ω, 24 VDC		
Switching distance		mm	ca. 15		ca. 15
Hysteresis for OSP		mm	ca. 8		ca. 3
Mechanical Characteristics					
Housing			Makrolon, grey		
Insulation class			F to VDE 0580		
Connection *)			Cable, 5 m long	3-pole connector M8, cable length ca.100mm**	
Cable cross section (highly flexible)		mm^2	2 x 0.14	3 x 0.14	
Cable (highly flexible)*)			PVC	PUR, black	
Wire colors			brown AC/DC+ blue or white signal output	Pin 1 = +, brown Pin 3 = 0V, blue Pin 4 = Signal black or white	
Permissible minimum bending radius of cable fixed		mm	≥ 20		
moving		mm	≥ 70		
Switching point accuracy		mm	± 0.2		
Temperature range *)	ϑ_{min} ϑ_{max}	°C °C	-25 +80	other temperature ranges on request	
Service life Switching cycles			3 x 10^6 up to 6 x 10^6	Theoretically unlimited	
Electrical protection		IP	67 to DIN 40005		
Shock resistance		m/s^2	100 (contact switches)	500	
Weight (mass)		kg	0.12		

HOERBIGER ORIGA

Proximity Sensors RS and ES

Type RS

In the type RS contact is made by a mechanical **reed switch** encapsulated in glass.
Direct connection with 2-pole cable, 5m long, open ended (Type RS-K).
With 3-pole connector M8, cable length ca. 100 mm (Type RS-S).

Type ES

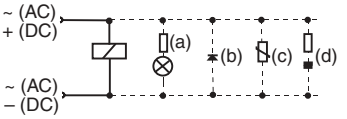
In the type ES contact is made by an **electronic switch** – without bounce or wear and protected from pole reversal. The output is short circuit proof and insensitive to shocks and vibrations.
Connection is by 3-pole connector for easy disconnection.
Fitted with connection cable 100 mm long with connector. A 5 m cable with connector and open end can be ordered separately, or use the Order No. for the complete Type ES with 5 m cable.

Electrical Service Life Protective Measures
Magnetic switches are sensitive to excessive currents and inductions. With high switching frequencies and inductive loads such as relays, solenoid valves or lifting magnets, service life will be greatly reduced.

With **resistive and capacitative loads** with high switch-on current, such as light bulbs, a protective resistor should be fitted. This also applies to long cable lengths and voltages over 100 V.

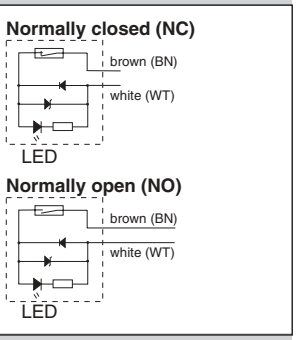
In the switching of inductive loads such as relays, solenoid valves and lifting magnets, voltage peaks (transients) are generated which must be suppressed by protective diodes, RC loops or varistors.

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

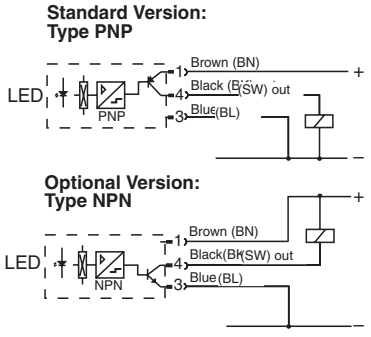


For the type ES, external protective circuits are not normally needed.

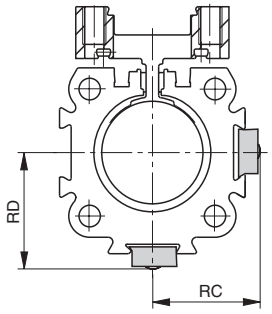
Electrical Connection, Type RS



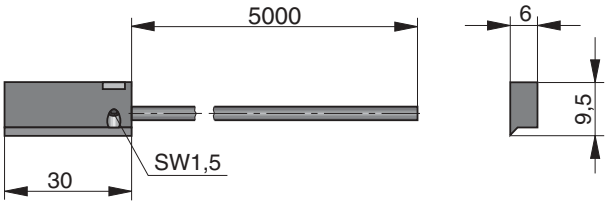
Electrical Connection, Type ES



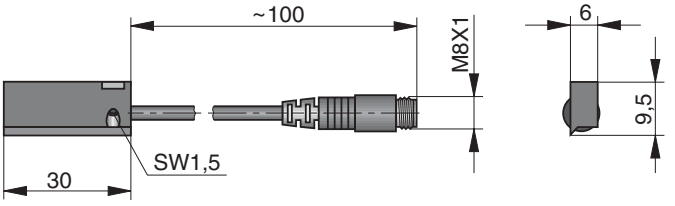
Dimensions

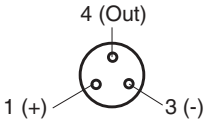


Dimensions (mm) – Type RS-K



Dimensions (mm) – Type ES-S / RS-S*





PIN assignment (view of pins) according to DIN EN 50044

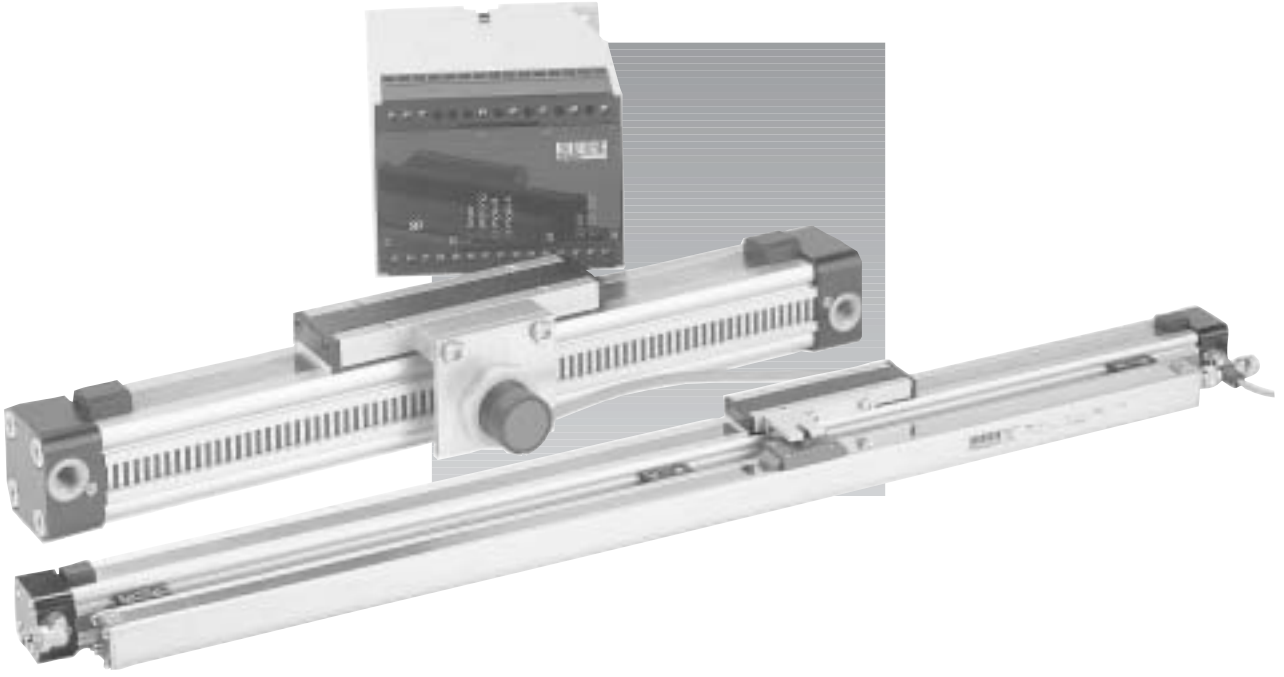
* Operating voltage max. 70 V

Dimension Table (mm) and Order Instructions

Series	Dimens. (mm) RC	RD	Order No. RS closer Normally open	RS opener Normally closed	ES PNP	ES NPN	ES PNP	ES NPN
OSP-16	20	20,5	**Type RS-K KL3045**	**Type RS-K KL3048**	**Type ES-S KL3054**	**Type ES-S KL3060**	**Type ES-S** comlete with 5 m cable **10750**	**Type ES-S** complete with 5 m cable **10751**
OSP-25	25	27		**Type RS-S KL3087**				
OSP-32	31	34						
OSP-40	36	39						
OSP-50	43	48						
OSP-63	53	59						
OSP-80	66	72						
Cable 5 m with connector and with open end for sensor Type ES-S / RS-S					**4041**			

PNEUMATIC
GROUP

ORIGA-SENSOFLEX
DISPLACEMENT MEASURING SYSTEMS
FOR CYLINDER SERIES OSP-P



HOERBIGER
ORIGA

ORIGA-Sensoflex

Displacement measuring systems for automated movement

Series SFI

(incremental measuring system)

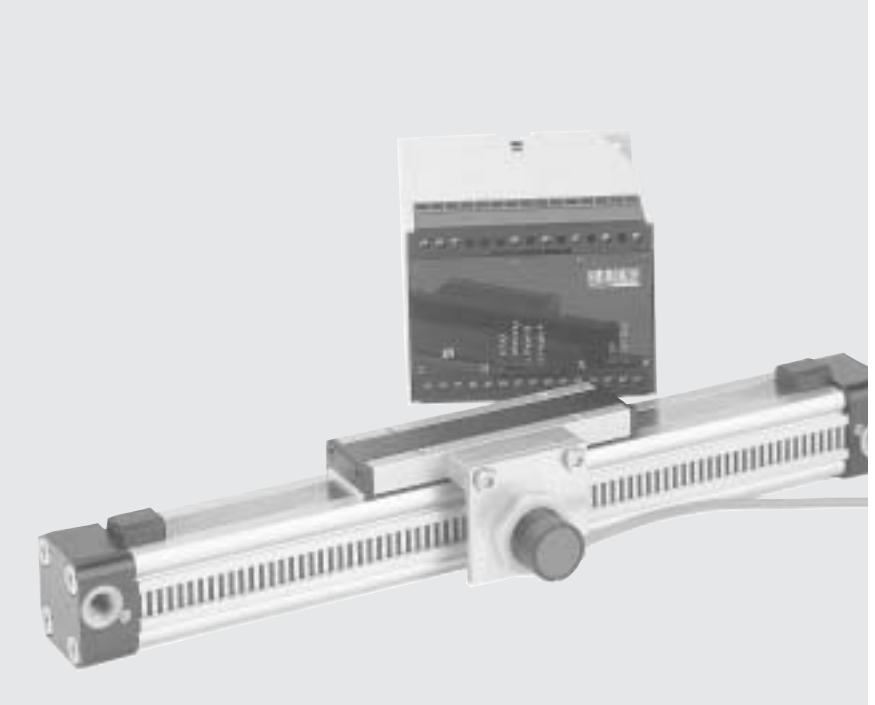
for cylinder series

- **OSP-P...**

Characteristics

- Contactless optical displacement measurement system (reflection-based)
- Unlimited displacement length
- Resolution to 1 mm
- Easy installation: self adhesive measuring scale, reader, encoder
- Displacement speed up to 7 m/s
- For linear and non-linear motion forms
- Suited for virtually all impulse recognition systems with counter input.

For further specifications, see page 67



System SFI consists of 3 components

- **Measuring scale**
  Self adhesive polyester tape with 2mm black/white increments

- **Sensing head**
  The sensing head converts the fluctuations in the reflections of the black/white increments into electrical signals, for further processing in additional counting equipment (e.g. PLC, PC, digital counter).

- **Encoder**
  Optional unit, that converts the signals from the sensing head into new signals (Modes). Three different Modes are available and digital outputs are provided.
  The encoder is also equipped with:
  - a digital input filter
  - a power supply for the sensing head
  - an extra signal output with RS 422 physical interface

Series SFA

(analogue displacement measuring system)

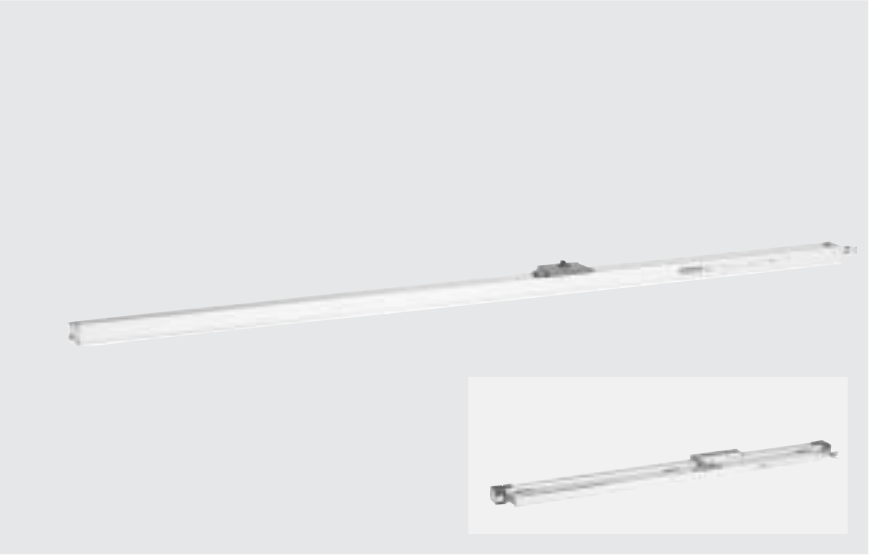
for cylinder series

- **OSP-P...**

Characteristics

- Measurement up to 4000mm (stepless)
- Resolution infinitely accurate, typically 0,01 mm
- No moving energy supply
- Preservation of measuring value in case of loss of power.

For further specifications, see page 71



This analogue displacement measuring system is based on a conductive plastic potentiometer for the direct and absolute measurement of displacement in control, monitoring and measurement applications.
The system is simple, robust and insensitive to electrical or magnetic interference.

General

The optical displacement measuring system SFI consists of 3 components

- **Measuring scale**
  Self adhesive polyester tape with 2mm black/white increments

- **Sensing head**
  The sensing head converts the fluctuations in the reflections of the black/white increments into electrical signals, for further processing in additional counting equipment (e.g. PLC, PC, digital counter)

- **Encoder**
  Optional unit, that converts the signals from the reader into new signals (Modes). Three different Modes are available and digital outputs are provided.
  The encoder is also equipped with:
  - a digital input filter
  - a power supply for the sensing head
  - an extra signal output with RS 422 physical interface

Characteristics

Characteristics		Unit	Description
Measuring scale	Material		self adhesive polyester tape
	Bar-code		4 mm intervals between each black/white increment
	Linearity	mm	± 0.1 to 5 m length
	Measuring scale length	m	max. 50 per reel (reels can be linked)
	Width	mm	25 (pre-cut at 10 mm)
	Thickness	mm	0.1
Sensing head	Scanning method		opto-electronic, contactless, reflection-based
	Velocity	m/s	max. 7
	Electrical protection	IP	64
	Temperature range	°C	-20 to +50
	Relative humidity	%	10 – 95 (non condensating)
	Weight (Mass)	kg	0.17
	Connection		Cable 5.0 m length, fixed, open end, diameter: 4 x 0.20 mm^2
	Voltage	V DC	Input: Ue = 12 to 24 Output: Open Collector
	Power consumption	W	max. 3.5
	Delivery includes		sensing head, incl. cable and 2 nuts
Encoder	Housing		for wall and rail mounting (35mm DIN-rail)
	Connection		terminal screws
	Voltage	V DC V AC	Input: 12 to 24 115, 230, 400
	Power consumption	W	max. 12
	Electrical protection	IP	20
	Temperature range	°C	0 bis 50
	Relative humidity	%	10 – 80 (non condensating)

Displacement measuring system

for automated movement

ORIGA-Sensoflex

(incremental displacement measuring system)

Series SFI

for cylinder series

- **OSP-P...**

Characteristics

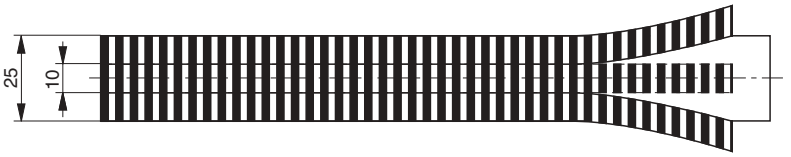
- Contactless optical displacement measurement system (reflection-based)
- Unlimited displacement length
- Resolution to 1 mm
- Easy installation: self adhesive measuring scale, sensing head, encoder
- Displacement speed up to 7 m/s
- For linear and non-linear motion forms
- Suited for virtually all impulse recognition systems with counter input.

HOERBIGER ORIGA

Measuring scale

The measuring scale can be applied to virtually all smooth surfaces. The adhesive is water-, oil-, and grease resistant to a very high degree. For easy adjustment of the scale width, it has been pre-cut.

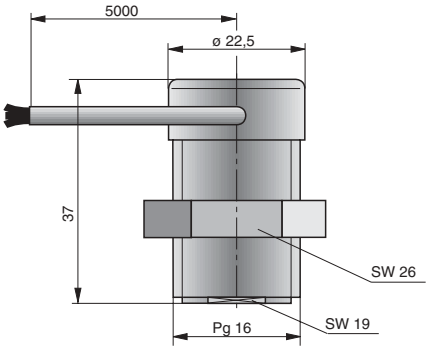
Dimensions (mm) – Measuring scale



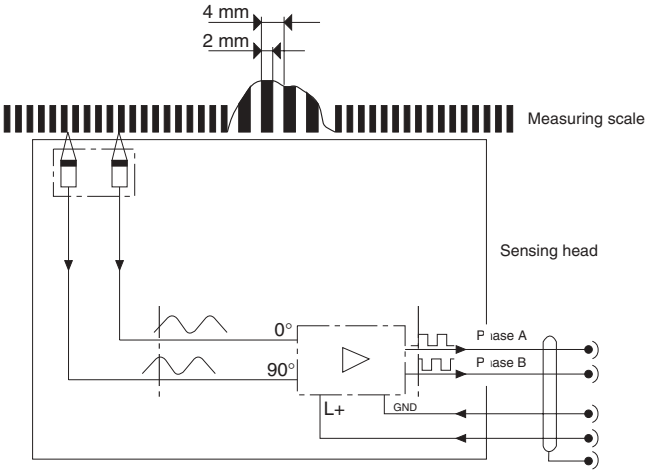
Sensing Head

The sensing head provides two pulsating, 90° out ot phase counter signals (phase A/B) with a 4mm resolution. External processing can improve the resolution to 1mm. The counting direction can be determined automatically from the phase variance of the counter signals.

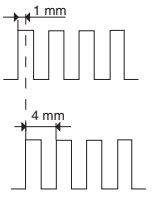
Dimensions (mm) – Sensing Head



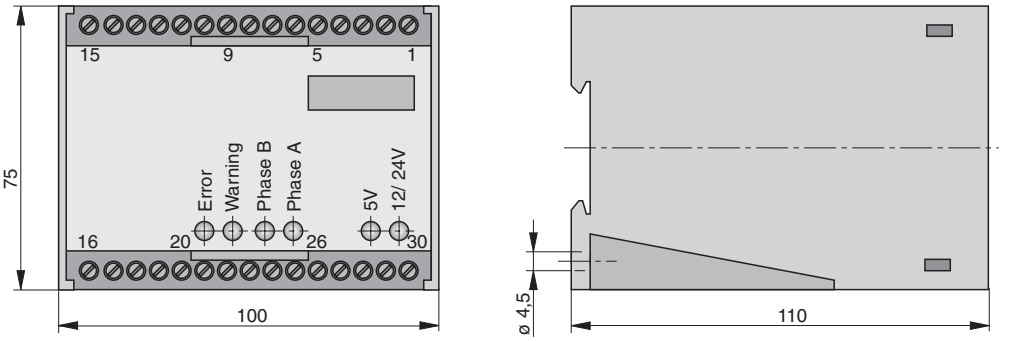
Connection diagram – Sensing head



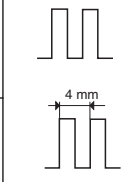
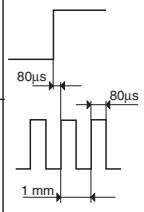
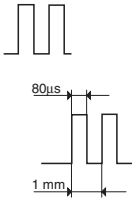
Output signal – Sensing head

$U_a = U_e$	Phase B	U_{a1}	0°	
	Phase A	U_{a2}	90°	

Dimensions (mm) – Encoder



Output signal - Encoder

		Signal		Mode 1 Distance indicator		Mode 2 Impulse generator		Mode 3 Impulse generator	
Input	U_e	L+		12 – 24 V DC					
		GND		O V DC					
Output	U_a = 5 - 12 - 24 V DC	Phase A	U_{a1}	0°		Direction		Count forward	
		Phase B	U_{a2}	90°		Count		Count backward	

Encoder

The encoder is an optional unit, that converts the signals from the sensing head into new signals (Modes). Three different Modes are available.

Mode 1 (Distance Indicator)
Just as in the sensing head, phase A and B provide two 90° out of phase counter signals, but the encoder has an additional digital filter.

Mode 2 (Impulse generator mode)
Phase A provides counter impulses with a length of +/- 80 µs („Count“). Internal signal processing renders a resolution of 1mm. Phase B gives a static High/Low signal for indication of the displacement direction.

Mode 3 (Impulse generator mode)
When counting upwards, phase A provides counter impulses with a length of 80 µs. Internal signal processing renders a resolution of 1mm. Phase B gives a Low-signal. When changing direction, the signals of phases A and B are switched.

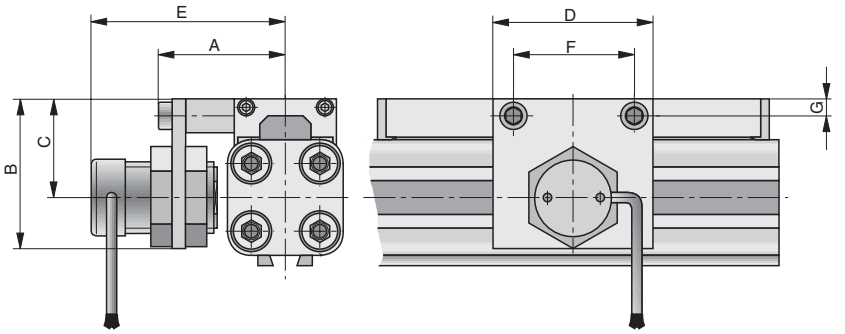
Two additional digital outputs are also available: ”Warning” and ”Error”, and it is possible to vary the output voltage.

- 5 V TTL / CMOS level
- 12 V / 24 V PLC level
- RS 422 level

SFI mounted on a rodless cylinder series OSP-P

The SFI system can be mounted directly on a rodless OSP-P cylinder with the special mounting kit.

Dimensions – in combination with OSP-P cylinders



Dimensions (mm)

Series	A	B	C	D	E	F	G
OSP-P25	40	46.5	30.5	50	60	38	5.5
OSP-P32	45.5	53.5	37.5	50	66	38	6.5
OSP-P40	50.5	59.5	43.5	50	71	38	6.5
OSP-P50	60.5	64.5	48.5	50	78	38	6.5
OSP-P63	67.5	75	59	50	88	38	10.0
OSP-P80	81.5	75.5	91.5	50	101	38	12.0

Order instructions

Description	Order No.
Sensing head with measuring scale (please provide displacement length)	**20494**
Encoder	**20495**
Measuring scale per meter (spare part)	**4271**
Mounting kit for OSP-P25	**20426**
Mounting kit for OSP-P32	**20427**
Mounting kit for OSP-P40	**20428**
Mounting kit for OSP-P50	**20429**
Mounting kit for OSP-P63	**20771**
Mounting kit for OSP-P80	**20772**

General

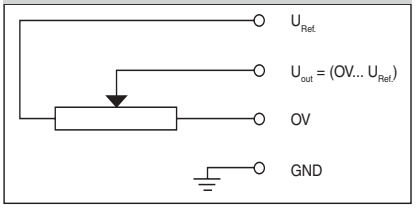
Characteristics

- Displacement measuring system without propulsion rod
- Minimal space requirements through compact design and minimal dead stroke
- Pin for easy connection
- Assembly with mounting brackets

In spite of its high resolution, this analogue displacement measuring system is inexpensive and ideally suited for rough industrial use because of its robust design. Easy handling and very low energy consumption make this system ideally suited for measuring, control and automation technology.
Basically, the SFA displacement measuring system functions as a voltage divider. A wiper is moved over a resistor, which in this modern system is a high-quality and robust conductive plastic layer.

This allows a high velocity and provides a very high resolution and a long life span.

Electrical connection



Assembly instructions

To achieve the linearity and life-span values specified in the technical data sheets, it is imperative that the wiper-voltage is read at a very low current (I < 10 µA). A higher current (I >10mA) would destroy the measuring system.

Characteristics

Characteristics	Unit	Description
General Features		
Measuring length		1-3000 mm stepless on request to 4000 mm
Life span		6000 km or 15 Million movements over ± 2 mm
Velocity	m/s	max. 1.5 *
Acceleration	m/s^2	max. 200
Actuating force	N	typ. 2
Repeatability	mm	± 0.02 (from one direction)
Reproducibility	mm	± 0.05 (from both directions)
Housing		anodized Aluminium
Weight (Mass)	kg/m	ca. 1.2
Temperature range	°C	-20 to +80
Relative humidity	%	10 to 95 (non condensating)
Electrical features		
Recommended wiper current	µA	0,1 – maximum wiper current 10 mA
Potentiometer voltage	V (DC)	max. 42
Recommended power	V (DC)	6.8 to 30
Connector		plastic elbow connector, cable 5mtr insulated, with open end
Temperature coefficient of the voltage divider ratio	ppm/°C	5
Enclosure class	IP	40
Signal output		potentiometric (voltage divider)
Insulation resistance	MΩ	10
Dielectric strength	V	500 eff

* higher speed decreases the life span

Displacement measuring system

for automated movements

ORIGA-Sensoflex

(analogue displacement measuring system)

Series SFA

for Cylinder Series OSP-P

Characteristics

- Stepless displacement length of up to 4000 mm
- Resolution infinitely accurate, typically 0.01 mm
- No moving power supply
- Preservation of measuring values in case of powerloss

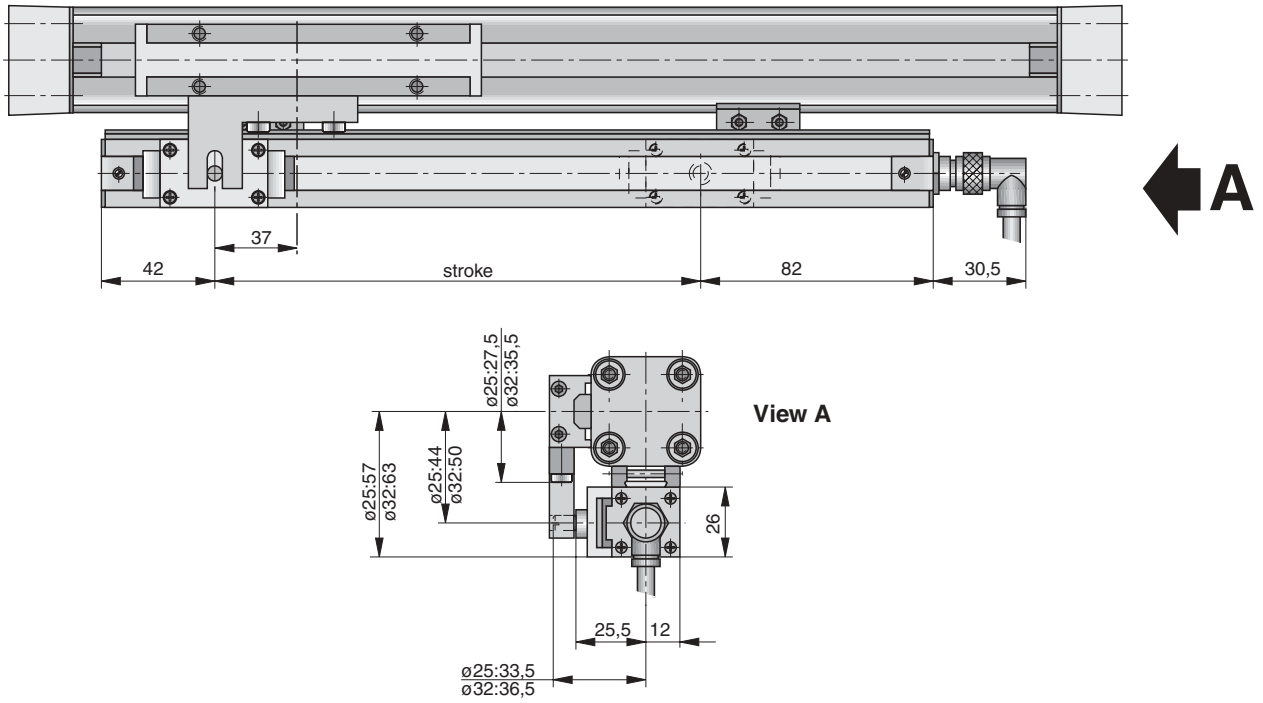
This analogue displacement measuring system is based on a conductive plastic potentiometer for the direct and absolute measurement of displacement in control, monitoring and measurement applications.
The system is simple, robust and insensitive to electrical or magnetic interference.

HOERBIGER ORIGA

Electrical Measuring Range

Description	Measuring distance (mm) 125	150	300	600	1000	1500	1800	3000
Resistor value (kΩ) typical	2	5	5	5	10	10	20	20
Resistor tolerance (%)	± 40							
Independent linearity (%)	±0.09	±0.08	±0.07	±0.05	±0.04	±0.03	±0.03	±0.02

Dimensions (mm) – SFA with cylinder OSP-P



Order instructions

Description	Order-No.
SFA with measuring length of 1-3000 mm*, without Cable	**4650**
Mounting for OSP-P ø 25 mm (Coupling, mounting, cable)	**20430**
Mounting for OSP-P ø 32 mm (Coupling, mounting, cable)	**20431**
Cable 5 m	**4618**

* (longer lengths on request)

Service Packs

Series OSP-P

		Bore Sizes						
		16mm	**25mm**	**32mm**	**40mm**	**50mm**	**63mm**	**80mm**
Buna-N Service Pack Single Piston	Part Number	11111-	11112-	11113-	11114-	11115-	11116-	11118-
Viton Service Pack Single Piston	Part Number	11121-	11122-	11123-	11124-	11125-	11126-	11128-

*Behind part number, please add stroke length in mm

Service Pack Information
Service Packs, containing all the components necessary to completely rebuild an Origa rodless cylinder, are available. Each pack contains a complete seal kit, inner and outer bands, Origa grease tube, cleaning tool and repair instructions. It's all packaged in an easy-to-ship, easy-to-store box clearly labeled to indicate the cylinder type, bore and stroke it is intended for. Contact your local Origa distributor for more information.

Ordering Instructions

US-OSP- **MOUNTING**

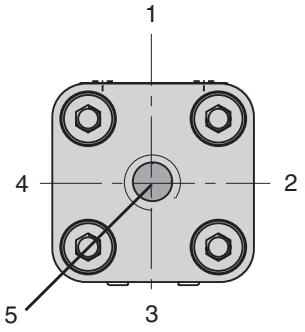
1	2	3	4
Series	**Bore**	**Mount Single Piston Mount**	**Mount Double Piston Mount**
P Pneumatic	0 10 (not available)	0 if double (all)	0 if single (all)
	1 16	1 std mnt (NR20) (all)	1 std mnt (NR20) (all)
	2 25	2 floating mount (NR25) (all)	2 floating mount (NR25) (all)
	3 32	3 invert mount (NR30) (all)	3 invert mount (NR30) (all)
	4 40	4 invert float mount (NR35) (all)	4 invert float mount (NR35) (all)
	5 50	5 slideline (NR50) (16,25,32,40,50,63)	5 slideline (NR50) (one piston, two carriages) (16,25,32,40,50,63)
	6 63	6 powerslide 25 (16,25)	6 powerslide 25 (one piston, two carriages) (16,25)
	8 80	7 powerslide 35 (25,32)	7 powerslide 35 (one piston, two carriages) (25,32)
		8 powerslide 44 (25,32,40)	8 powerslide 44 (one piston, two carriages) (25,32,40)
		9 powerslide 60 (40,50)	9 powerslide 60 (one piston, two carriages) (40,50)
		A powerslide 76 (50)	A powerslide 76 (one piston, two carriages) (50)
		B brake active-pressure (25,32,40,50,63,80)	B brake active-pressure (25,32,40,50,63,80
		C	C
		D joint clamp std (25,32,40,50)	D joint clamp std (25,32,40,50)
		E joint clamp floating (25,32,40,50)	E joint clamp floating (25,32,40,50)
		F joint clamp invert (25,32,40,50)	F joint clamp invert (25,32,40,50)
		G joint clamp invert float (25,32,40,50)	G joint clamp invert float (25,32,40,50)
		H joint clamp plate (25,32,40,50)	H joint clamp plate (25,32,40,50)
		J joint clamp invert plate (25,32,40,50)	J joint clamp invert plate (25,32,40,50)
		K joint clamp brake active-pressure (25,32,40,50)	K joint clamp brake active-pressure (25,32,40,50)
		L	L
		M Guideline (25,32,40,50)	M
		N SL multibrake-passive w/sensor (25,32,40,50,63,80)	N
		P SL multibrake-passive w/o sensor (25,32,40,50,63,80)	P
		Q Proline/GDL (25,32,40,50)	Q
		R Proline w/active brake-pressure (25,32,40,50)	R
		S Proline multibrake w/o sensor (25,32,40,50)	S
		T “T” section piston mount (NR22) (40,50,63,80)	T “T” section piston mount (NR22) (40,50,63,80)
		U slideline w/active brake (25,32,40,50)	U slideline w/active brake (one piston, two carriages) (25,32,40,50)
		V VOE (25-G1/8,32-G1/4,40-G3/8,50-G3/8) 24VDC	V VOE (25-G1/8,32-G1/4,40-G3/8,50-G3/8) 24VDC
		W	W
		X VOE (25-G1/8,32-G1/4,40-G3/8,50-G3/8) 230VAC	X VOE (25-G1/8,32-G1/4,40-G3/8,50-G3/8) 230VAC
		Y	Y
		Z special	Z special

OPTIONS

SWITCHES/SUPPORT

STROKE

5	6	7	8	9*	10	11	12	13- 14 15 16 17 18
Seals	**Grease**	**Ports**	**Screws & Coating**	**End Cap Support**	**Center Support Qty.**	**Switch**	**Switch Qty.**	**Stroke (mm)**
0 buna	0 std	0 std	0 std	0 none	0 none	0 none	0	— 0 0 0 0 0
1 viton	1 slow	pos 2	1 stainless hardware	1 A1 (16,25,32)		1 no reed KL3045 (all)		
2	2 clean	1 pos 5	2 xylan coated aluminum	2 A2 (16,25,32)		2 nc reed KL3048 (all)		
3	3 food	2 single		3 A3 (25,32)		3 pnp KL3054&4041 (all)		
4	4	3 pos 1	3 stainless/xylan	4 C1 (40,50,63,80)		4 npn KL3060&4041 (all)		
5	5	4 pos 3	4	5 C2 (40,50)		5 sfi (25,32,40,50,63,80)		
6	6	5 pos 4	5	6 C3 (40,50,63,80)		6 sfa (25,32)		
7	7	6	6	7 C4 (40,50)		7 sfi+no (25,32, 40,50,63,80)		
8	8	7	7	8 B1 (25,32)		8 sfi+nc (25,32, 40,50,63,80)		
9	9	8	8	9 B3 (16)		9 sfi+pnp (25,32, 40,50,63,80)		
A	A	9	9	A B4 (25,32)		A sfi+npn (25,32, 40,50,63,80)		
B	B	A	A	B D1 (all)		B sfa+no (25,32)		
C	C	B	B	C E1 (all)		C sfa+nc (25,32)		
D	D	C	C	D E2 (16,25,32,40,50,63)		D sfa+pnp (25,32)		
E	E	D	D	E E3 (16,25,32,40,50, 63,80)		E sfa+npn (25,32)		
F	F	E	E	F E4 (25,32,40,50)		F servotec (25,32)**		
G	G	F	F	G A1+D1 (16,25,32)		G nc reed with connector and 5m cable, KL3087 and 4041 (all)		
H	H	G	G	H B1+D1 (25,32)		H servotec (25,32) 220VAC		
J	J	H	H	J C1+D1 (40,50,63,80)		J		
K	K	J	J	K A1+E1 (16,25,32)		K		
L	L	K	K	L B1+E1 (25,32)		L		
M	M	L	L	M C1+E1 (40,50,63,80)		M		
N	N	M	M	N A2+E2 (16,25,32)		N		
P	P	N	N	P C2+E2 (40,50)		P		
Q	Q	P	P	Q A3+E3 (25,32)		Q		
R	R	Q	Q	R B3+E3 (16)		R		
S	S	R	R	S C3+E3 (40,50,63,80)		S		
T	T	S	S	T B4+E4 (25,32)		T		
U	U	T	T	U C4+E4 (40,50)		U		
V	V	U	U	V		V		
W	W	V	V	W		W		
X	X	W	W	X		X		
Y	Y	X	X	Y		Y		
Z special	Z special	Y	Y	Z special		Z special		
		Z special	Z special					



Note: Position #2 is the standard location.

9*Two end supports are supplied in the OSP-P part number

F**consult factory (pneumatic servo system)

Pneumatic Actuator Application Sheet

Distributor: End-User:

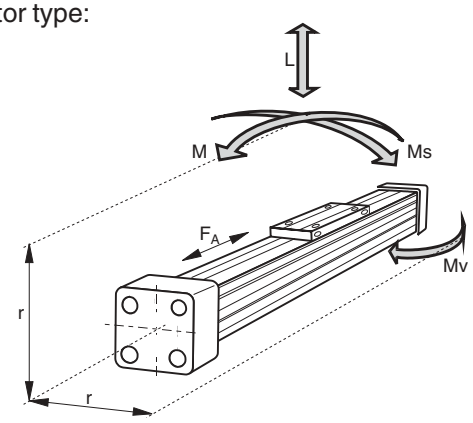
Salesperson:

Phone: Fax:

Stroke: _____ Time to make move: _____ Load: _____ Incline:

❑ Check if load is externally supported

Actuator type:



M =

MS =

MV =

Description:

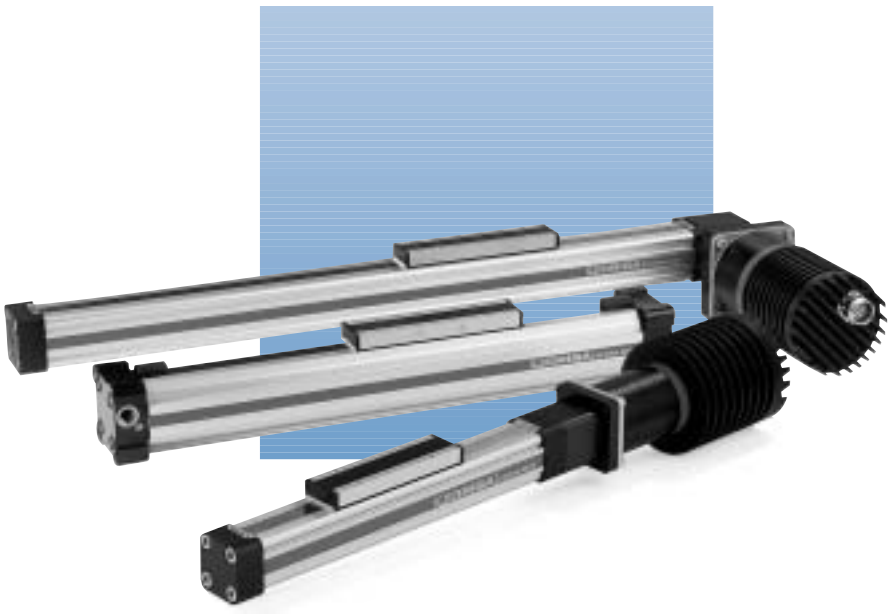
❑ See Attached for additional information

Special Features Required:

❑ Switches Type _____ Qty. _____

Please complete and fax to: 630/871-1515, Attention: Technical Support

Advice, service and sales . . . worldwide and round the clock



HOERBIGER

ORIGA

HOERBIGER-ORIGA CORPORATION • 100 West Lake Drive, Glendale Heights, IL 60139 • tel (630) 871-8300 • fax (630) 871-1515 • E-mail: usmarket@hoerbiger-origa.com
HOERBIGER-ORIGA GmbH • Sudliche Romerstraße 15 • Postfach 11 10 • D-86972 Altenstadt • tel +49+8861 2211-0 • fax +49+8861 221-1305 • E-mail: pneu@hoerbiger.de
HOERBIGER-ORIGA PNEUMATIK GmbH • Johann-Giefing-Straße 12 • A-2700 Wiener Neustadt • tel (02622) 26071 • fax 26071-5 • E-mail: amarket@hoerbiger-origa.com
HOERBIGER-ORIGA Ltd. • Tewkesbury Industrial Estate • Tewkesbury G1.20 8ND, GB • tel +44+1684 850000 • fax 850555 • E-mail: marketing@hoerbiger-origa.com
HOERBIGER-ORIGA AB. • Box 67 • S-736 22 Kungsor, Sweden • tel +46 227 4114 00 • fax +46 227 411 29 • E-mail: semarket@hoerbiger-origa.com
HOERBIGER-ORIGA GmbH • Industriestr. 8 • D-70794 Filderstadt • tel (07158) 1703-0 • fax 64870 • E-mail: dmarket@hoerbiger-origa.com
Internet: http://www.hoerbigeroriga.com
ZA4P011-0503