

Linear actuators DGP/DGPL - Inch Series



- Piston Ø 11/16" to 3"
- Stroke lengths up to 118"
- Double acting, rodless design
- Available with a bearing guide (DGPL) or without (DGP)
- Repairable

Product range overview						
Function	Version	Piston Ø [in]	Stroke [in]	Force [lbf]	Variants	
					PPV	A
Double-acting	Without guide	11/16, 1, 1-1/4, 1-5/8, 2, 2-1/2, 3	0.39 ... 118	34.4 ... 678	■	■
	GF Plain-bearing guide				■	■
	KF Recirculating ball bearing guide				■	■

Variants

- PPV Adjustable air cushioning at both ends
 A Magnet for position sensing

Linear actuators DGP/DGPL - Inch Series

Selection aid

General information

- Double-acting rodless design
- Adjustable end-position cushioning system
- Magnet for position sensing
- Can be combined with the modular system for handling and assembly technology

Basic design DGP

- Piston \varnothing 11/16 ... 3 inch
- Stroke lengths 0.39 ... 118 inch
- As an actuator for external guides
- Maintenance-free
- For small loads



With plain-bearing guide DGPL-GF-GK

- Piston \varnothing 11/16 ... 3 inch
- Stroke lengths 0.39 ... 118 inch
- Minimal backlash
- Maintenance-free
- For medium loads and low torques



With recirculating ball bearing guide DGPL-KF-GK/-GV

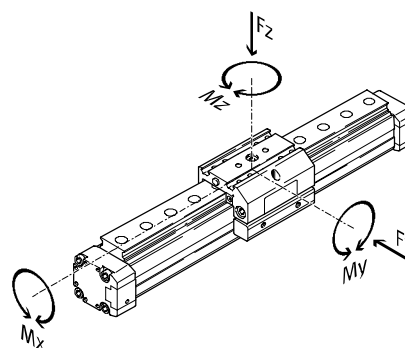
- Piston \varnothing 11/16 ... 3 inch
- Stroke lengths 0.39 ... 118 inch
- Backlash-free
- Precision, rigid guide
- Maintenance-free up to 2×10^8 inches of travel
- For high loads and torques



Linear actuators DGP/DGPL - Inch Series

Selection aid

Guide characteristics



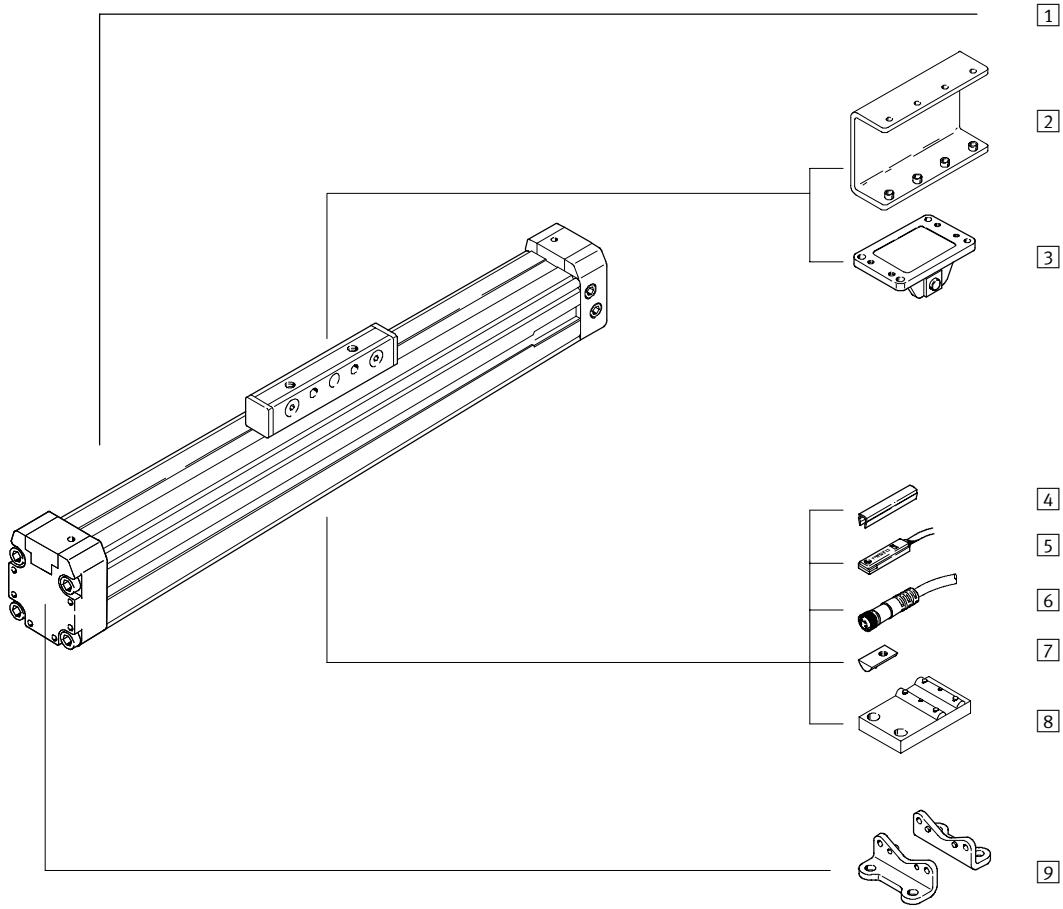
Version	Piston Ø [in]	Stroke ¹⁾ [in]	Theoretical force at 90 psi [lbf]	Forces and torques				
				Fy [lbf]	Fz [lbf]	Mx [ft-lbf]	My [ft-lbf]	Mz [ft-lbf]
Basic version without guide DGP								
	11/16	0.39... 71	34.4	–	27.0	1.1	24.3	2.2
	1	0.39... 118	66.3		74.2	2.2	44.3	6.6
	1-1/4	0.39... 118	109		107.9	4.4	88.5	11.1
	1-5/8	0.39... 118	170		179.8	8.9	132.8	17.7
	2	0.39... 118	265		269.8	15.5	265.5	33.2
	2-1/2	0.39... 118	420		359.7	17.7	265.5	53.1
	3	0.39... 118	678		1124.0	35.4	829.8	154.9
With plain-bearing guide DGPL-GF								
	11/16	0.39... 71	34.4	76.4	76.4	2.4	19.9	19.9
	1	0.39... 118	66.3	96.7	96.7	6.0	27.7	27.7
	1-1/4	0.39... 118	109	96.7	96.7	9.4	33.2	33.2
	1-5/8	0.39... 118	170	227.0	227.0	25.4	64.2	64.2
	2	0.39... 118	265	227.0	227.0	35.4	91.8	91.8
	2-1/2	0.39... 118	420	449.6	449.6	81.9	260.0	260.0
	3	0.39... 118	678	449.6	449.6	110.6	254.5	254.5
With recirculating ball bearing guide DGPL-KF								
	11/16	0.39... 71	34.4	209.1	209.1	7.7	49.8	49.8
	1	0.39... 118	66.3	692.4	692.4	49.8	188.1	188.1
	1-1/4	0.39... 118	109	692.4	692.4	69.7	276.6	276.6
	1-5/8	0.39... 118	170	1641.0	1641.0	188.1	730.2	730.2
	2	0.39... 118	265	1641.0	1641.0	265.5	1017.8	1017.8
	2-1/2	0.39... 118	420	3158.4	3158.4	641.7	2013.5	2013.5
	3	0.39... 118	678	3158.4	3158.4	824.2	1709.3	1709.3

1) With effective strokes of over 78.7 inches the installation of the actuator unit must be with the sealing strip facing down.
Longer strokes available on request.

Linear actuators DGP - Inch Series

Accessories overview

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Linear actuators DGP - Inch Series

Accessories overview

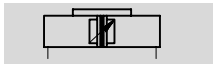
Mounting attachments and accessories	
Type	Description
1 Linear actuator DGP	Pneumatic linear actuator
2 Load inverter AK	The carriage should be mounted pointing downwards with long strokes > 79" or in unfavorable environments. By using the load inverter it means that the load can be attached from above.
3 Moment compensator FKP	For compensating misalignments when using external guides
4 Slot cover ABP	For protecting against dirt and securing proximity sensor cables
5 Proximity sensor SMT/SME	For sensing the carriage position
6 Plug socket with cable SIM	For use with proximity sensors with plug connector
7 Slot nut for profile slot NST	For mounting attachments
8 Central support MUP	For mounting the axis, particularly with long strokes
9 Foot mounting HP	For mounting the axis



Linear actuators DGP - Inch Series

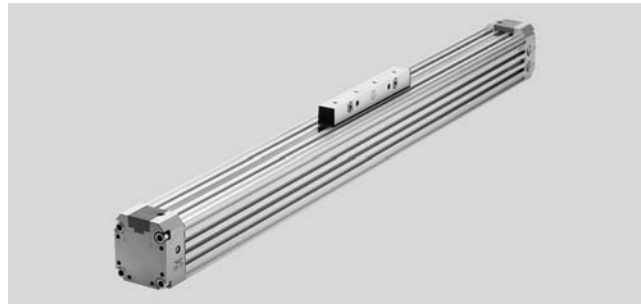
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Technical data

Function



-  - Diameter
1 1/16 ... 3 inch
-  - Stroke length
0.04 ... 118 inch



General technical data							
Piston \varnothing	11/16	1	1-1/4	1-5/8	2	1-1/2	3
Constructional design	Pneumatic linear actuator						
Protection against torsion/guide	Slotted profile barrel						
Mode of operation	Double-acting						
Pneumatic connection	10-32 UNF	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT		
Stroke length [in]	0.39 ... 71	0.39 ... 118 ¹⁾					
Cushioning (PPV)	Adjustable at both ends						
Cushioning length [in]	0.63	0.67	0.79	1.18	3.27		
Magnet for position sensing ²⁾	Standard						

- 1) With effective strokes of over 2000 mm the installation of the actuator unit must be with the sealing strip facing down; longer strokes available on request.
- 2) Position sensing via magnetic proximity sensor (ordered separately, see accessories).

Operating and environmental conditions							
Piston \varnothing	11/16	1	1-1/4	1-5/8	2	2-1/2	3
Operating medium	Filtered compressed air, lubricated or unlubricated						
Operating pressure [psi]	29.4 ... 120			22.1 ... 120			
Ambient temperature ¹⁾ [°F]	14 ... +140						

- 1) Note operating range of proximity sensors.

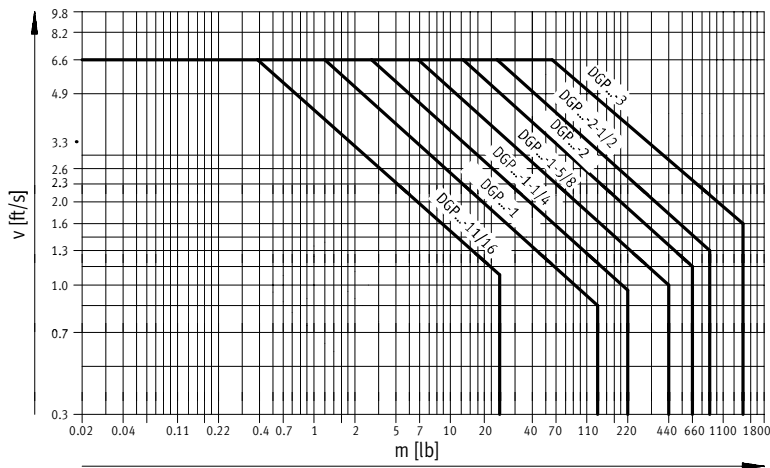
Forces [lbf]							
Piston \varnothing	11/16	1	1-1/4	1-5/8	2	2-1/2	3
Theoretical force at 90 psi	169.3	326.4	534.4	834.2	1303.3	2068.9	3336.7

Linear actuators DGP - Inch Series

Technical data

Operating range of the integrated end-position cushioning PPV

Maximum permissible speed v as a function of the moving load m (when using PPV air cushioning only)



Note

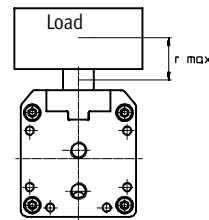
The data applies to a horizontal mounting position, applied load on top.

m = Applied load + mass of carriage

End-position cushioning

The end-position cushioning must be adjusted to ensure smooth operation. If the operating conditions are outside the permissible range, the load to be moved must be externally

cushioned using suitable equipment (shock absorbers, stops, etc), preferably at the center of gravity of the mass.



$r_{max.}$ = 0.8 inch
for piston \varnothing 11/16 inch

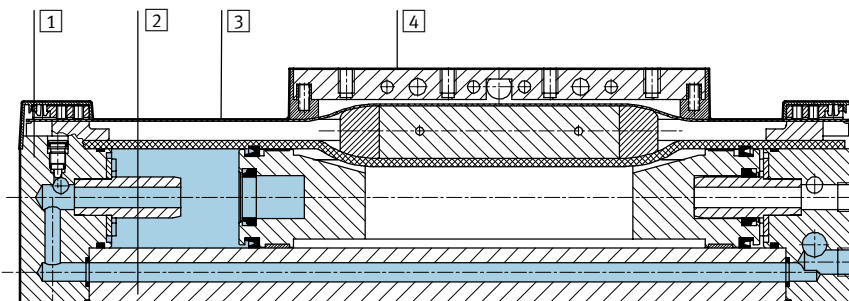
$r_{max.}$ = 2.0 inch
for piston \varnothing 1 ... 3 inch
(data for greater load distances on request)

Weights [oz]

Piston \varnothing	11/16	1	1-1/4	1-5/8	2	2-1/2	3
Basic weight with 0 inch stroke	16.2	29.6	54.7	93.5	207.4	321.0	610.2
Additional weight per 1 inch stroke	1.4	3.2	3.7	5.1	10.0	13.3	14.2
Mass of carriage	2.8	6.4	11.3	19.4	54.7	62.1	176.4

Materials

Sectional view



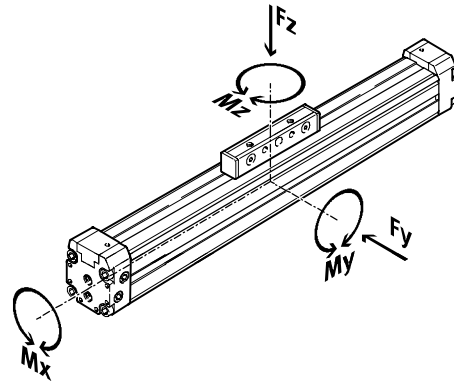
Axis	11/16	1	1-1/4	1-5/8	2	2-1/2	3
1 End cap	Anodized aluminum						
2 Profile	Anodized aluminum						
3 Cover strip	Corrosion resistant steel						Polyurethane
4 Carriage	Anodized aluminum						
- Seals	Nitrile rubber, polyurethane						

Linear actuators DGP - Inch Series

Technical data

Characteristic load values

The indicated forces and torques refer to the center line of the internal diameter of the profile barrel. They must not be exceeded in the dynamic range.



DGP is an actuator designed for use with an external linear guide to accommodate larger forces and moment-loads.

If the actuator is subjected to more than two of the indicated forces and torques simultaneously, the following equations must be satisfied in addition to the indicated maximum loads:

$$0.4 \times \frac{Fz}{Fz_{max.}} + \frac{Mx}{Mx_{max.}} + \frac{My}{My_{max.}} + 0.2 \times \frac{Mz}{Mz_{max.}} \leq 1$$

$$\frac{Fz}{Fz_{max.}} \leq 1 \quad \frac{Mz}{Mz_{max.}} \leq 1$$

Permissible forces and torques								
Piston Ø		11/16	1	1-1/4	1-5/8	2	2-1/2	3
Fy _{max.}		Not designed for lateral forces (see DGPL)						
Fz _{max.}	[lbf]	27.0	74.2	107.9	179.8	269.8	359.7	1124.0
Mx _{max.}	[ft-lbf]	0.6	1.1	2.2	4.4	7.7	8.9	35.4
My _{max.}	[ft-lbf]	12.2	22.1	44.3	66.4	132.8	132.8	829.8
Mz _{max.}	[ft-lbf]	1.1	3.3	5.5	8.9	16.6	26.6	154.9

Linear actuators DGP - Inch Series

Technical data

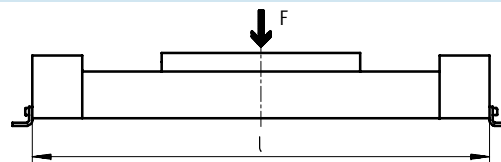
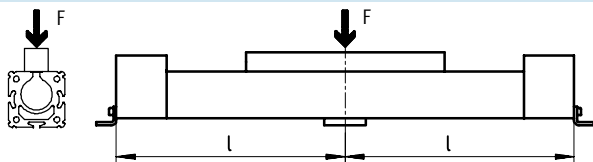
Maximum permissible support span l as a function of the force F

The axis may need to be supported with central supports (Type MUP) in order to restrict deflection with long

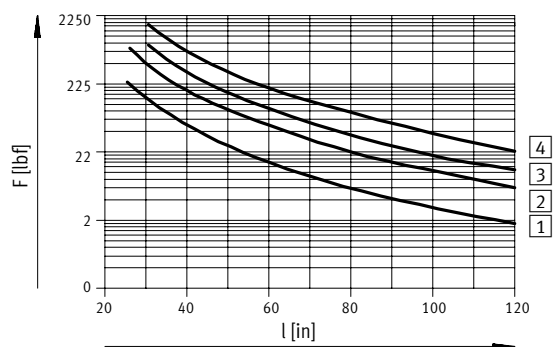
stroke lengths. The following diagrams serve to determine the maximum permissible

support span l as a function of the force F acting upon the axis.

Force on the surface of the slide

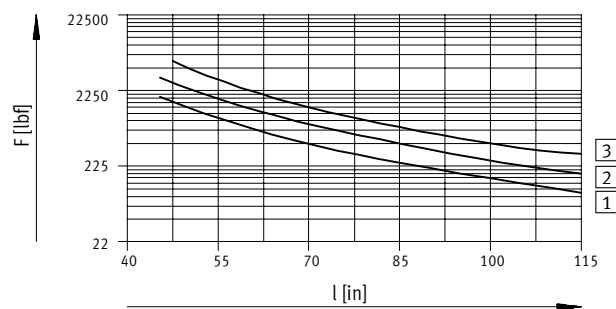


Piston $\varnothing 11/16 \dots 1-5/8$



- 1 DGP...-11/16 3 DGP...-1-1/4
- 2 DGP...-1 4 DGP...-1-5/8

Piston $\varnothing 2 \dots 3$



- 1 DGP...-2 3 DGP...-3
- 2 DGP...-2-1/2

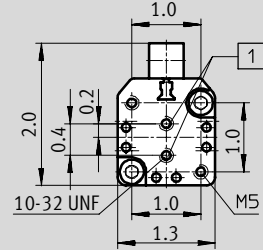
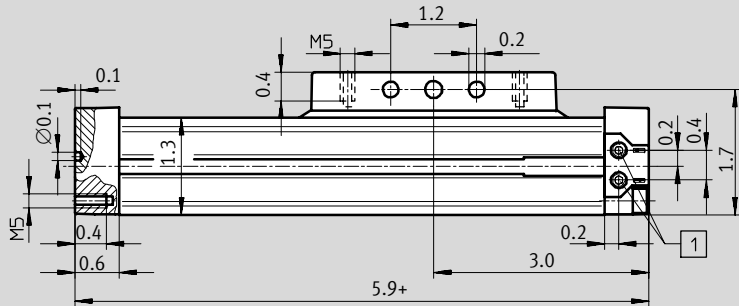
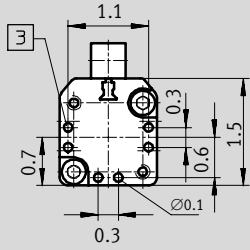
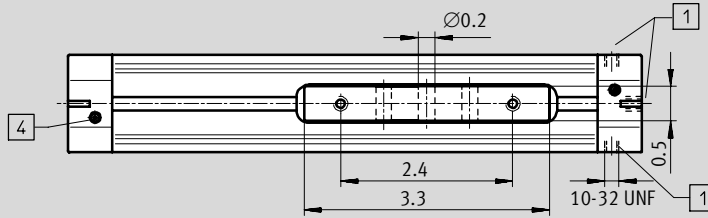
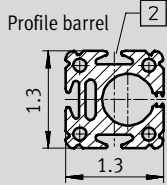
Linear actuators DGP - Inch Series

Technical data

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Dimensions

Piston $\varnothing 11/16$



1 Three sets of supply ports on one end, one on each side and one in end

2 Sensor slot for proximity sensor

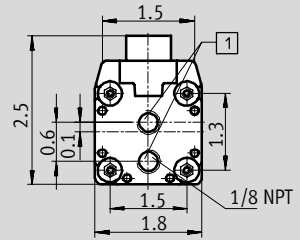
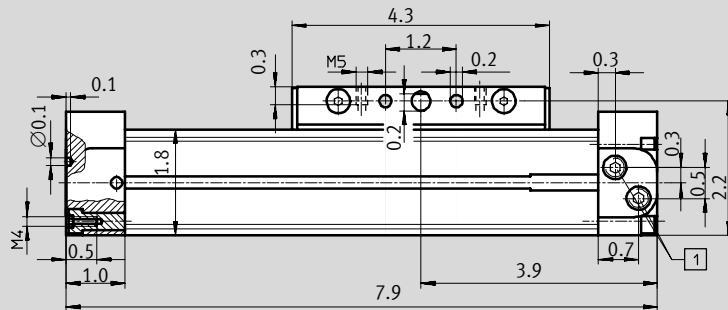
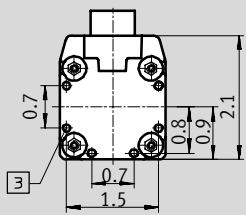
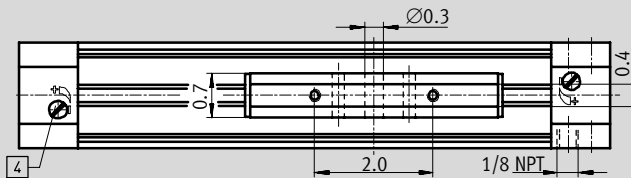
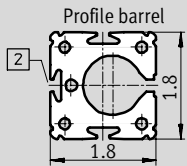
3 Mounting hole for foot mounting HP

4 Regulating screw for adjustable end-position cushioning

+ = plus stroke length

Dimensions

Piston $\varnothing 1$



1 Three sets of supply ports on one end, one on each side and one in end

2 Sensor slot for proximity sensor

3 Mounting hole for foot mounting HP

4 Regulating screw for adjustable end-position cushioning

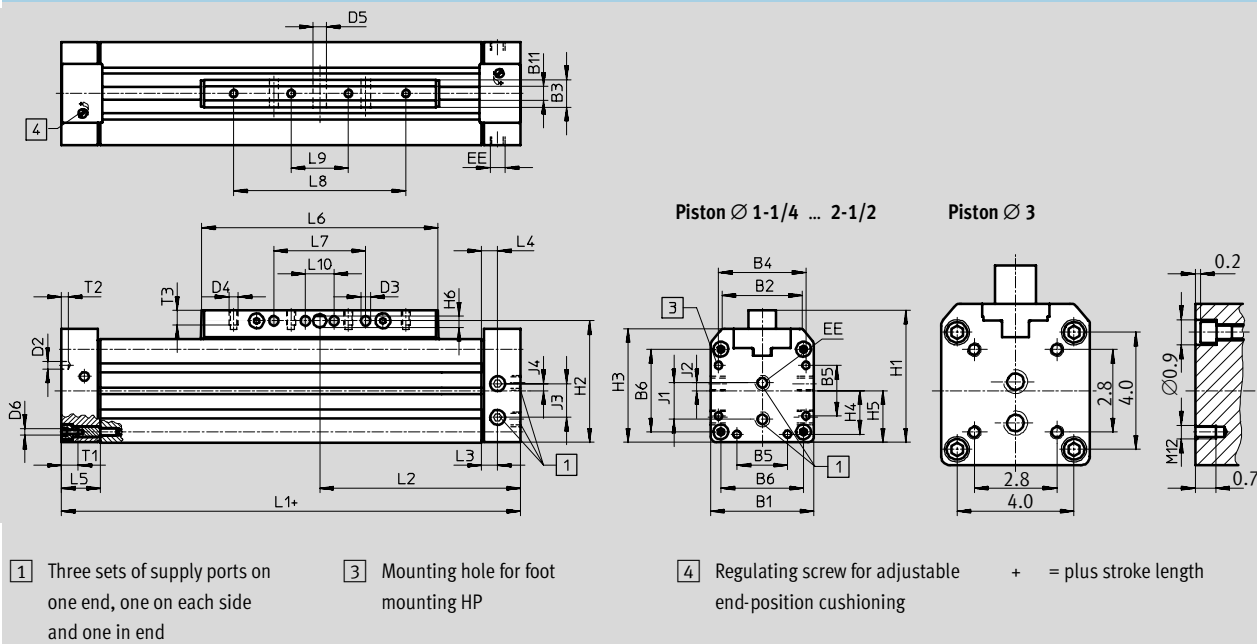
+ = plus stroke length

Dimensions are in inches, unless otherwise noted.

Linear actuators DGP - Inch Series

Technical data

Dimensions



Dimensions are in inches, unless otherwise noted.

Linear actuators DGP - Inch Series

Technical data

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Profile barrel

Piston \varnothing 1-1/4

Piston \varnothing 1-5/8

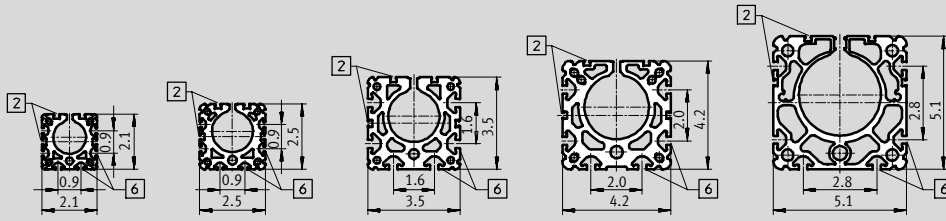
Piston \varnothing 2

Piston \varnothing 2-1/2

Piston \varnothing 3

2 Sensor slot for proximity sensor

6 Sensor slot for slot nut NST



\varnothing	B1	B2	B3	B4	B5	B6	B11	D2	D3	D4	D5	D6	EE	H1	H2
[in]								\varnothing	\varnothing		\varnothing				
1-1/4	2.1	1.4	0.8	1.8	0.8	1.6	9.5	0.2	0.2	10/24 UNC	0.3	M5	1/8 NPT	2.8	2.6
1-5/8	2.5	1.8	0.8	2.1	1.1	1.9			0.3	1/4-20 UNC	0.4		1/4 NPT	3.4	3.1
2	3.5	2.7	0.9	3.0	1.7	2.8	12	0.3	0.3	5/16-18 UNC	0.5	M6	1/4 NPT	4.5	4.2
2-1/2	4.2	3.3		3.5		3.3						M8	3/8 NPT	5.2	4.8
3	5.1	4.0	1.4	-	-	-	-	-	0.5	1/2-13 UNC	0.8	-	1/2 NPT	6.9	6.2

\varnothing	H3	H4	H5	H6	J1	J2	J3	J4	L1	L2	L3	L4	L5	L6
[in]														
1-1/4	2.4	0.9	1.1	0.2	0.8	0.2	0.6	0.2	9.8	4.9	0.7	0.3	1.2	5.3
1-5/8	2.8	1.0	1.3	0.3	0.9	0.2	0.8	0.4	11.8	5.9	0.5	0.5		6.7
2	3.9	1.4	1.8	0.4	1.3	0.3	1.2	0.2	13.8	6.9	0.6	0.6	1.3	8.1
2-1/2	4.5	1.8	2.1		1.5	0.3	1.2	0.6	15.8	7.9				9.2
3	5.5	2.0	2.6	-	1.4		1.3	0.1	20.5	10.2	0.8	0.8	1.8	13.2

\varnothing	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	L22	T1	T2	T3
[in]														
1-1/4	2.0	3.9	1.2	-	15.0	7.5	7.1	-	6.3	9.1	10.4	0.5	0.1	0.3
1-5/8	2.8	5.1	1.6		18.5	9.3	6.3	9.8	8.7	-	13.4		0.2	0.4
2	3.2	5.9	2.0		21.7	10.8	11.0	-	9.8	13.8	16.0	0.6	0.2	0.5
2-1/2	4.3	7.5	2.8		25.6	12.8	15.0		12.2	16.9	19.1	0.8		
3	7.1	9.1	4.5	2.4	-	-	-		-	-	-	-	-	0.8

Dimensions are in inches, unless otherwise noted.

Linear actuators DGP - Inch Series

Ordering Data

Mandatory data					
Actuator function	Size	Stroke	Cushioning	Magnet for position sensing	Generation
DGP	11/16 1 1-1/4 1-5/8 2 2-1/2 3	0.39 ... 118	PPV	A	B
DGP	- 1	- 20	- PPV	- A	- B

Ordering table										
Size	11/16	1	1-1/4	1-5/8	2	2-1/2	3	Condi- tions	Code	Enter code
M Actuator function	Pneumatic linear actuator								DGP	DGP
Size	11/16	1	1 1/4	1 5/8	2	2 1/2	3		-...	
Stroke [in]	0.39 ... 71	0.39 ... 118							-...	
Cushioning	Adjustable air cushioning at both ends								-PPV	-PPV
Magnet for position sensing	For use with magnetic proximity sensor								-A	-A
Generation	B series								-B	-B

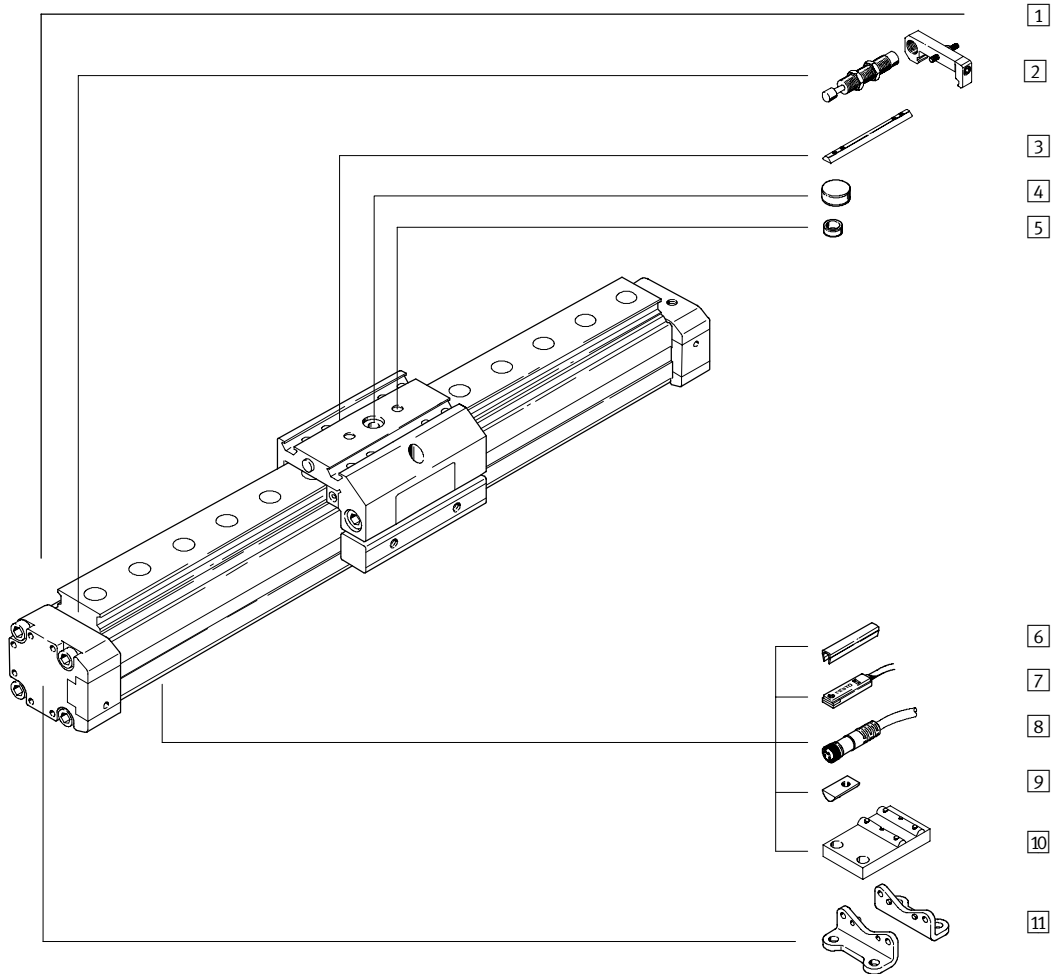
Transfer order code

DGP	-		-		-	PPV	-	A	-	B
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Linear actuators DGPL, with guide - Inch Series

Accessories overview

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Linear actuators DGPL, with guide - Inch Series

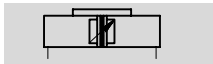
Accessories overview

Mounting components and accessories		
Type	Description	GF/KF
1 Linear axis DGPL	Pneumatic linear actuator with guide	■
2 Shock absorber kit YSR/KYP	For slowing higher speeds to a stop Shock absorber YSR and Retainer KYP (ordered separately)	■
3 Slot nut for slide NTSL	For mounting loads and attachments on the slide	■
4 Central mounting SLZZ	For centring loads and attachments on the slide	■
5 Alignment pins/sleeves ZBS/ZBH	For aligning loads and attachments on the slide	■
6 Slot cover ABP	For protecting against dirt and securing proximity sensor cables	■
7 Proximity sensor SMT/SME	For sensing the slide position	■
8 Plug socket with cable SIM	For proximity sensors with plug connector	■
9 Slot nut for profile barrel NST	For mounting attachments	■
10 Central support MUP	For mounting the axis	■
11 Foot mounting HP	For mounting the axis	■

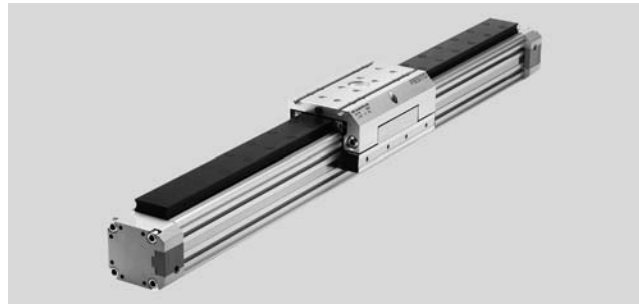
Linear actuators DGPL, with guide - Inch Series

Technical data

Function



- \varnothing - Diameter
11/16 ... 3 inch
- | - Stroke length
0.39 ... 118 inch



General technical data							
Piston \varnothing	11/16	1	1-1/4	1-5/8	2	2-1/2	3
Constructional design	Pneumatic linear actuator with integrated bearing guide						
Guide/protection against torsion	Guide rail with carriage and plain-bearing guide GF or recirculating ball bearing guide KF						
Mode of operation	Double-acting						
Pneumatic connection	10-32 UNF	1/8 NPT		1/4 NPT		3/8 NPT	1/2 NPT
Stroke length [in]	0.39 ... 71		0.39 ... 118 ¹⁾				
Cushioning	Adjustable air cushioning at both ends						
Cushioning length (PPV) [in]	0.7	0.8	0.8	1.2			3.3
Magnet for position sensing ²⁾	Standard						
Max. speed	GF	[ft/s]	3.3				
	KF	[ft/s]	9.8, 6.6 with PPV				

- 1) With effective strokes of over 78.7 inches the installation of the actuator unit must be with the sealing strip facing down; longer strokes available on request.
- 2) Position sensing via magnetic proximity sensor (ordered separately, see accessories).

Operating and environmental conditions							
Piston \varnothing	11/16	1	1-1/4	1-5/8	2	2-1/2	3
Operating medium	Filtered compressed air, lubricated or unlubricated						
Operating pressure [psi]	29.4 ... 120			22.0 ... 120			
Ambient temperature ¹⁾ [°F]	+14 ... +140						
Corrosion resistance class for variant GF CRC ²⁾	2						

- 1) Note operating range of proximity sensors.
- 2) Corrosion resistance class 2 according to Festo standard 940 070
Components with moderate corrosion resistance for use in normal industrial environments subjected to contact with coolants or lubricating agents.

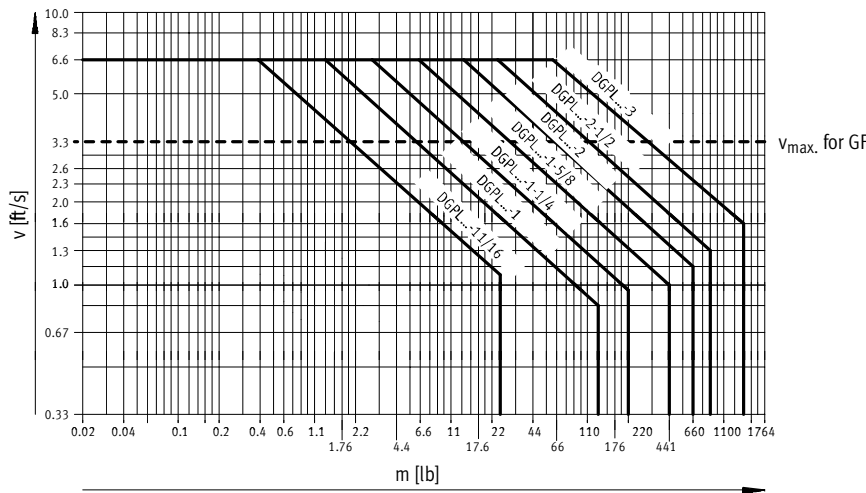
Forces [lbf]							
Piston \varnothing	11/16	1	1-1/4	1-5/8	2	2-1/2	3
Theoretical force at 90 psi	34.4	66.3	109	170	265	420	678

Linear actuators DGPL, with guide - Inch Series

Technical data

Operating range of the integrated end-position cushioning PPV

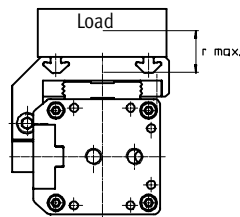
Maximum permissible speed v as a function of the moving load M (when using PPV air cushioning only)



Note
The data applies to a horizontal mounting position, applied load on top.
 m = Applied load + mass of carriage

End-position cushioning

The end-position cushioning must be adjusted to ensure smooth operation. If the operating conditions are outside the permissible range, the load to be moved must be externally cushioned using suitable equipment (shock absorbers, stops, etc), preferably at the center of gravity of the mass.



$r_{max.} = 0.8$ inch
for piston \varnothing 11/16 inch

$r_{max.} = 2.0$ inch
for piston \varnothing 1 ... 3 inch
(data for greater load distances on request)

Note

To maximize bearing life and smoothness of operation, the mounting surface that the actuator will be mounted to must maintain a flatness of at least 0.001 inch.

Weights [oz]

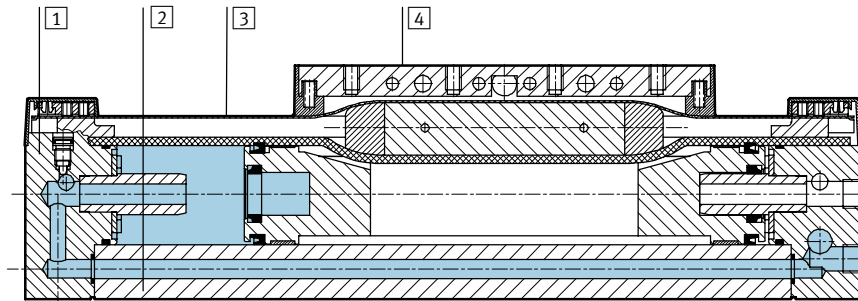
Piston \varnothing		11/16	1	1-1/4	1-5/8	2	2-1/2	3
Basic weight with 0 inch stroke	GF	26	48	84	137	303	478	896
	KF	29	54	96	158	339	542	1012
Additional weight per 1 inch stroke	GF	2.0	3.8	4.6	6.5	11.8	16.2	18.1
	KF	2.3	4.7	6.2	8.7	15.0	21.1	24.2
Mass of carriage	GF	8	13	19	34	62	98	250
	KF	10	15	20	41	69	114	265

Linear actuators DGPL, with guide - Inch Series

Technical data

Materials

Sectional view



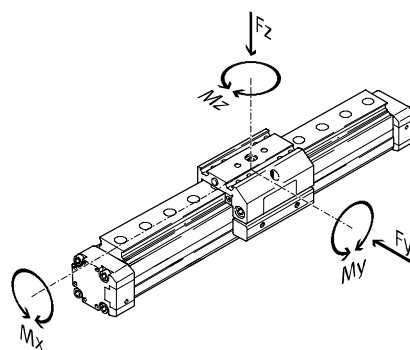
Axis	11/16	1	1-1/4	1-5/8	2	2-1/2	3
1 End cap	Anodized aluminum						
2 Profile	Anodized aluminum						
3 Cover strip	Corrosion resistant steel						Polyurethane
4 Carriage	Anodized aluminum						
- Guide rail	GF	Anodized aluminum					
	KF	Steel	Corrosion resistant steel				
- Seals	Nitrile rubber, polyurethane						

Linear actuators DGPL, with guide - Inch Series

Technical data

Characteristic load values for actuator with bearing guide

The indicated forces and torques refer to the center of the guide rail. They must not be exceeded in the dynamic range. Special attention must be paid to the cushioning phase.



Forces and moments based on travel life of 2×10^8 inches.

If the actuator is subjected to more than two of the indicated forces and torques simultaneously, the following equations must be satisfied in addition to the indicated maximum loads:

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

Note

All values for the GF version refer to a speed of 0.7 ft/s.

Permissible forces and torques for plain-bearing guide (GF) version

Piston Ø		11/16	1	1-1/4	1-5/8	2	2-1/2	3
F _y max.	[lbf]	76.4	96.7	96.7	227.0	227.0	449.6	449.6
F _z max.	[lbf]	76.4	96.7	96.7	227.0	227.0	449.6	449.6
M _x max.	[ft-lbf]	2.4	6.0	9.4	25.4	35.4	81.9	110.6
M _y max.	[ft-lbf]	11.1	15.5	19.9	37.6	57.5	154.9	254.5
M _z max.	[ft-lbf]	11.1	15.5	19.9	37.6	57.5	154.9	254.5

Permissible forces and torques for recirculating ball bearing guide (KF) version

Piston Ø		11/16	1	1-1/4	1-5/8	2	2-1/2	3
F _y max.	[lbf]	209.1	692.4	692.4	1641.0	1641.0	3158.4	3158.4
F _z max.	[lbf]	209.1	692.4	692.4	1641.0	1641.0	3158.4	3158.4
M _x max.	[ft-lbf]	7.7	49.8	69.7	188.1	265.5	641.7	824.2
M _y max.	[ft-lbf]	25.4	94.0	140.5	365.1	508.9	1006.8	1709.3
M _z max.	[ft-lbf]	25.4	94.0	140.5	365.1	508.9	1006.8	1709.3

Linear actuators DGPL, with guide - Inch Series

Technical data – Plain-bearing guide

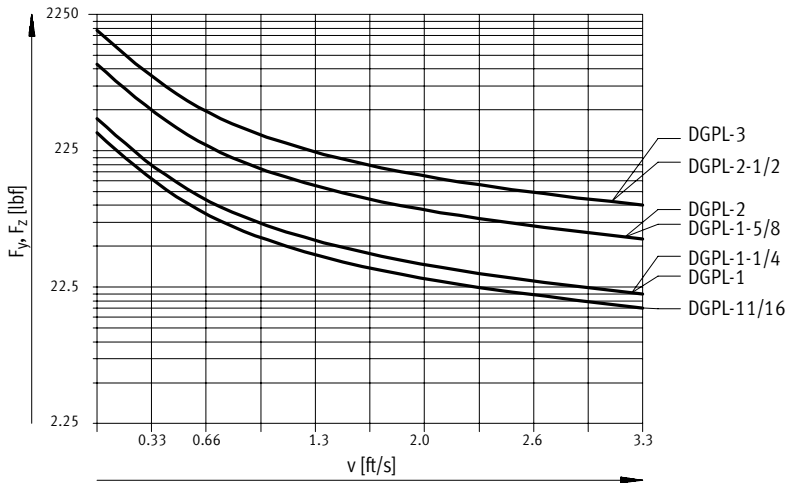
Maximum permissible static and dynamic characteristic load values

Standard slide and plain-bearing guide DGPL-...-GF

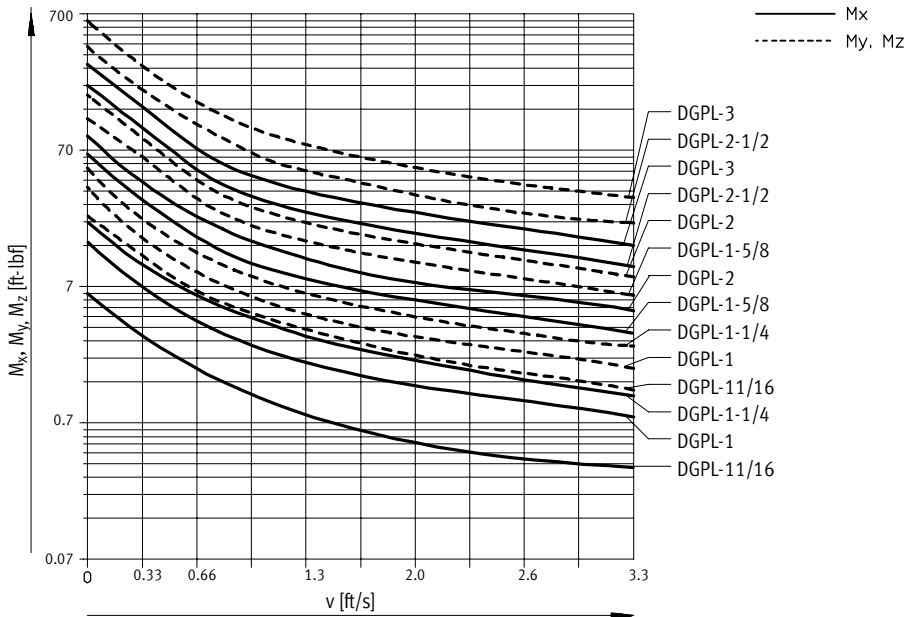
The pneumatic linear actuator with plain-bearing guide DGPL-...-GF is designed for a maximum speed of 3.3 ft/s. At higher speeds and verti-

cal application, it is recommended that pneumatic linear actuators with recirculating ball bearing guide DGPL-...-KF are used.

Maximum permissible speed v as a function of the force F



Maximum permissible speed v as a function of the permissible torque M



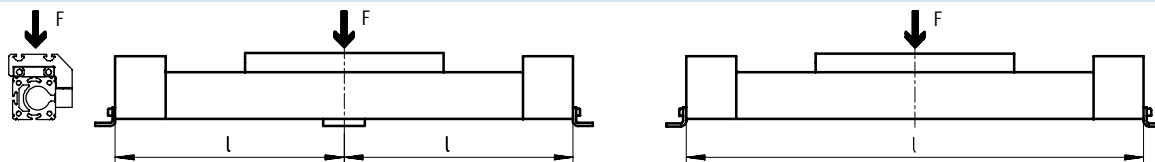
Linear actuators DGPL, with guide - Inch Series

Technical data

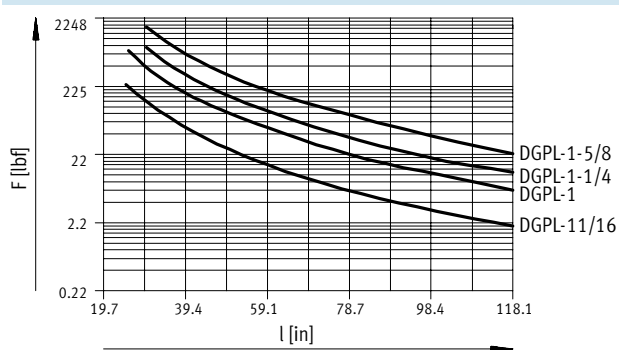
Maximum permissible support span l as a function of the force F

The axis may need to be supported with central supports (type MUP) in order to restrict deflection with long stroke lengths. The following diagrams serve to determine the maximum permissible support span l as a function of the force F acting upon the axis.

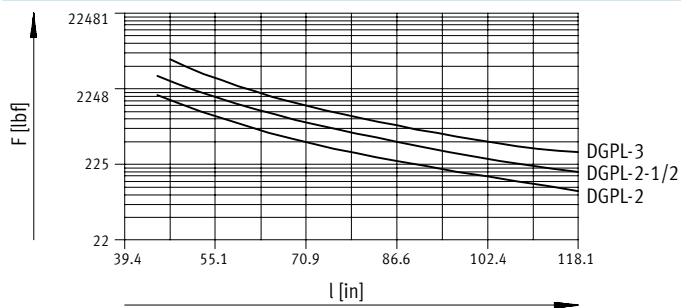
Force on the surface of the slide



Piston $\varnothing 11/16 \dots 1-5/8$



Piston $\varnothing 2 \dots 3$



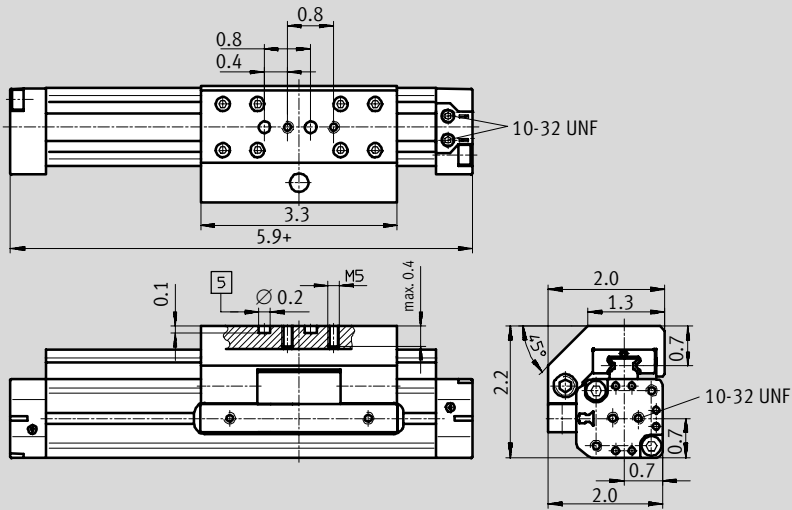
Linear actuators DGPL, with guide - Inch Series

Technical data

FESTO

Dimensions

Piston $\varnothing 11/16$

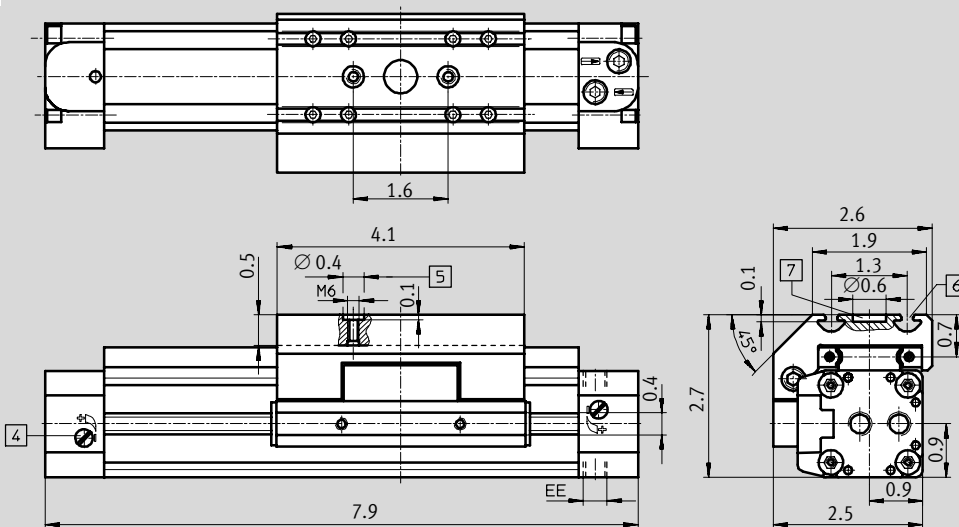


5 Holes for centring pin ZBS 5

+ = plus stroke length

Dimensions

Piston $\varnothing 1$



5 Hole for centring sleeve ZBH-9

6 Mounting slot for slot nut NSTL-25

7 Hole for central mounting SLZZ

+ = plus stroke length

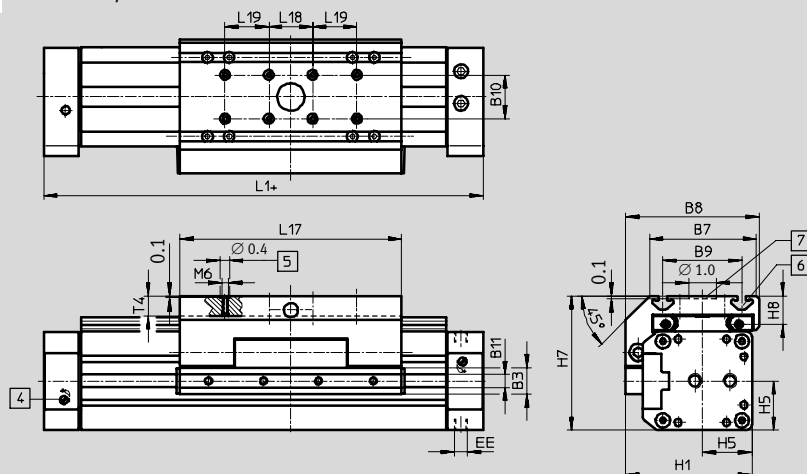
Dimensions are in inches, unless otherwise noted.

Linear actuators DGPL, with guide - Inch Series

Technical data

Dimensions

Piston \varnothing 1-1/4 ... 3



- 5 Hole for centring sleeve ZBH-9
- 6 Mounting slot for slot nut NSTL
- 7 Hole for central mounting SLZZ

+ = plus stroke length

\varnothing	B3	B7	B8	B9	B10	B11	B12	B14	D1	EE
[in]										
1-1/4	0.7	2.5	3.1	1.9	0.8	0.4	4.4	2.7	-	1/8 NPT
1-5/8	0.8	3.1	3.8	2.2			5.4	3.1	M5	1/4 NPT
2	0.9	3.8	4.8	2.8	1.6	0.5	-	-	-	3/8 NPT
2-1/2		4.8	5.6	3.5			-	-	1/2 NPT	
3	1.4	6.0	7.4	4.4						

\varnothing	H1	H5	H7	H8	H10	H11	H12	H13	L1	L2
[in]										
1-1/4	2.8	1.1	3.1	0.7	3.7	-	1.9	1.3	9.8	4.9
1-5/8	3.4	1.3	3.6	0.8	4.2	0.9	2.1	1.4	11.8	5.9
2	4.5	1.8	4.8	1.0	-	-	-	-	13.8	6.9
2-1/2	5.2	2.1	5.7	1.2					15.7	7.9
3	6.9	2.6	6.9	1.4					20.5	10.2

\varnothing	L17	L18	L19	L20	L21	L23	L24	L25	T4	T5
[in]									max.	
1-1/4	5.2	1.6	-	10.3	1.6	5.2	-	-	0.5	-
1-5/8	6.6		1.6	13.3	6.6	5.9	2.3	0.3		
2	8.0		1.6	15.8	3.1	-	-	0.7		
2-1/2	9.1		1.6	18.9	4.7	-	-	0.8		
3	12.6		1.6	-	-	-	-	1.1		

Dimensions are in inches

Linear actuators DGPL, with guide - Inch Series

Ordering data

M Mandatory data						
Actuator function	Size	Stroke	Cushioning	Magnet for position sensing	Guide	Generation
DGPL	11/16 1 1-1/4 1-5/8 2 2-1/2 3	0.39 ... 118	P PPV	A	GF KF	B
DGPL	- 2-1/2	- 800	- PPV	- A	- KF	- B

Ordering table											
Size	11/16	1	1-1/4	1-5/8	2	2-1/2	3	Condi- tions	Code	Enter code	
M Actuator function	Pneumatic linear actuator								DGPL	DGPL	
Size	11/16	1	1 1/4	1 5/8	2	2 1/2	3		-...		
Stroke [in]	0.39... 71	0.39 ... 118								-...	
Cushioning	Adjustable air cushioning at both ends								-PPV	-PPV	
Magnet for position sensing	For use with magnetic proximity sensor								-A	-A	
Guide	Plain-bearing guide								-GF		
	Recirculating ball bearing guide								-KF		
Generation	B series								-B	-B	

Transfer order code

DGPL	-		-		-	A	-	PPV	-		-	B
------	---	--	---	--	---	---	---	-----	---	--	---	---

Linear actuators DGP/DGPL - Inch Series

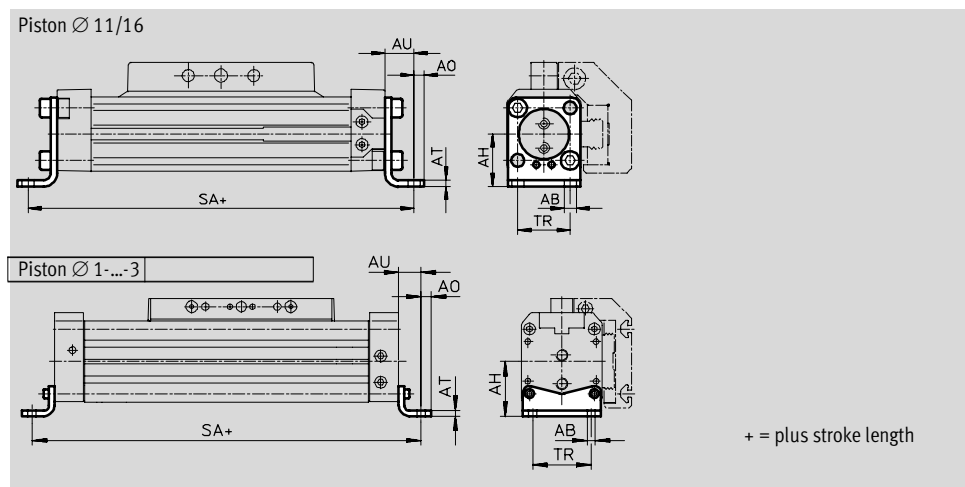
Accessories

Foot mounting HP

Material:
Galvanized steel
Free of copper, PTFE and silicone



HP-25



Dimensions and ordering data										
For \varnothing	AB \varnothing	AH	AO	AT	AU	SA	TR	Weight	Part No.	Type
[in]								[oz]		
11/16	0.2	0.9	0.2	0.1	0.5	6.9	0.9	2.1	158472	HP-18
1	0.2	1.2	0.2	0.1	0.5	8.9	1.3	2.2	150731	HP-25
1-1/4	0.3	1.5	0.3	0.2	0.7	11.2	1.5	4.1	150732	HP-32
1-5/8	0.3	1.8	0.3	0.2	0.7	13.2	1.8	6.6	150733	HP-40
2	0.4	2.4	0.4	0.2	1.0	15.7	2.6	8.6	150734	HP-50
2-1/2	0.4	2.7	0.5	0.2	1.1	18.0	3.0	10.8	150735	HP-63
3	0.5	3.3	0.5	0.3	1.1	22.7	2.8	21.9	158453	HP-80

Dimensions are in inches, unless otherwise noted.

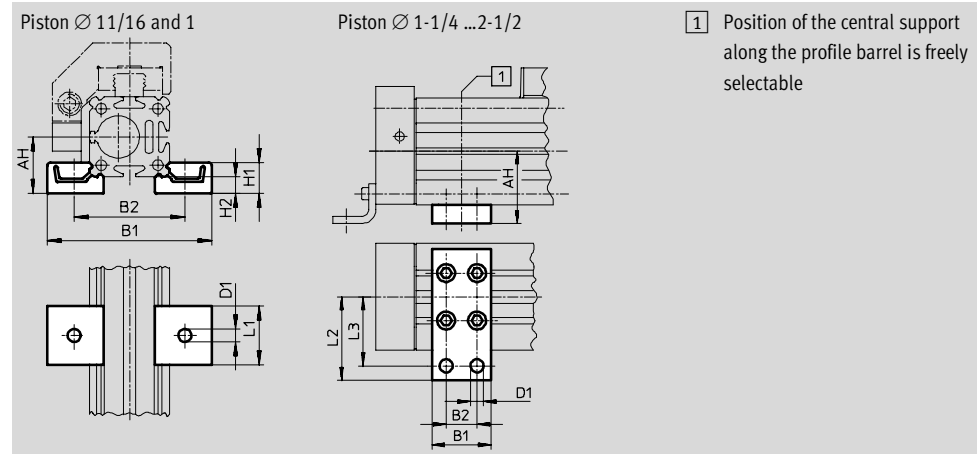
Linear actuators DGP/DGPL - Inch Series

Accessories

FESTO

Central support MUP

Material:
Galvanized steel
Free of copper, PTFE and silicone



Dimensions and ordering data												
For Ø	AH	B1	B2	D1	H1	H2	L1	L2	L3	Weight	Part No.	Type
[in]				Ø						[oz]		
11/16	0.9	2.8	1.9	0.2	0.5	0.3	1.0	-	-	1.0	150736	MUP-18/25
1	1.2	3.2	2.3	0.2	0.5	0.3	1.0	-	-	1.2	150736	MUP-18/25
1-1/4	1.5	1.4	0.9	0.3	-	-	-	1.63	1.4	3.1	150737	MUP-32
1-5/8	1.8	1.4	0.9	0.3	-	-	-	1.85	1.6	4.4	150738	MUP-40
2	2.4	2.0	1.0	0.4	-	-	-	2.8	2.3	8.5	150739	MUP-50
2-1/2	2.7	2.0	1.0	0.4	-	-	-	3.0	2.6	12.0	150800	MUP-63
3	3.3	2.0	1.0	0.4	-	-	-	3.5	3.0	20.8	158455	MUP-80

Dimensions are in inches, unless otherwise noted.

Linear actuators DGP/DGPL - Inch Series

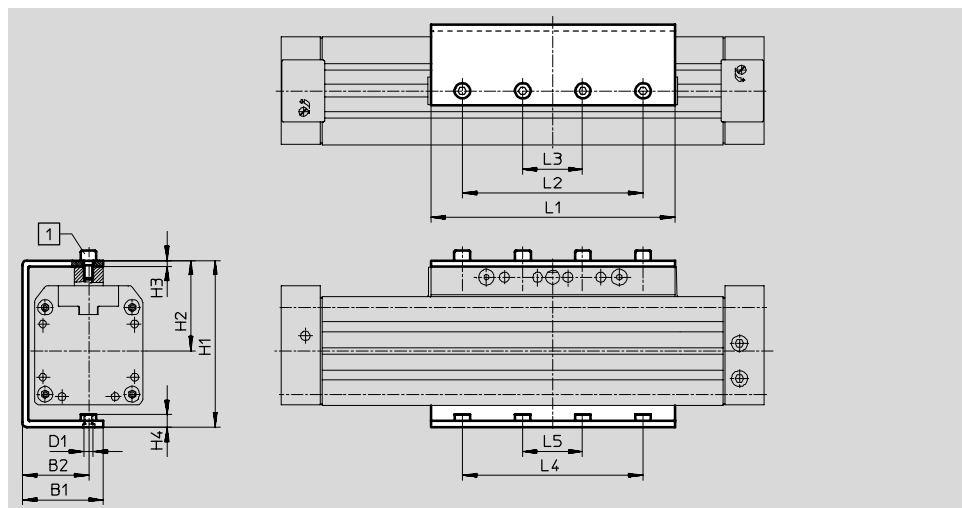
Accessories

Load inverter AK

For DGP

Material:

Galvanized steel



Dimensions and ordering data									
For Ø	B1	B2	D1	H1	H2	H3	H4	L1	L2
[in]									
11/16	1.1	0.9	M5	2.5	1.4	0.1	0.2	3.1	-
1	1.5	1.2	M5	3.0	1.7	0.1	0.2	4.1	-
1-1/4	1.7	1.3	M5	3.4	1.9	0.2	0.2	5.2	3.9
1-5/8	2.0	1.6	M6	4.1	2.3	0.2	0.3	6.6	5.1
2	2.6	2.2	M8	5.5	3.0	0.2	0.4	8.0	5.9
2-1/2	3.0	2.6	M8	6.2	3.3	0.2	0.5	9.1	7.5

For Ø	L3	L4	L5	[1]	CRC ¹⁾	Weight	Part No.	Type
[in]						[oz]		
11/16	2.4	2.4	0.8	M5x12	2	8.0	196105	AK-18
1	2.0	2.0	0.8	M5x10		13.4	196106	AK-25
1-1/4	1.2	3.9	1.2	M5x12		24.3	196107	AK-32
1-5/8	1.6	5.1	1.6	M6x14		37.0	196108	AK-40
2	2.0	5.9	2.0	M8x16		73.4	196109	AK-50
2-1/2	2.8	7.5	2.8	M8x18		99.5	196110	AK-63

1) Corrosion resistance class 2 according to Festo standard 940 070
 Components with moderate corrosion resistance for use in normal industrial environments subjected to contact with coolants or lubricating agents.

Dimensions are in inches, unless otherwise noted.

Linear actuators DGP/DGPL - Inch Series

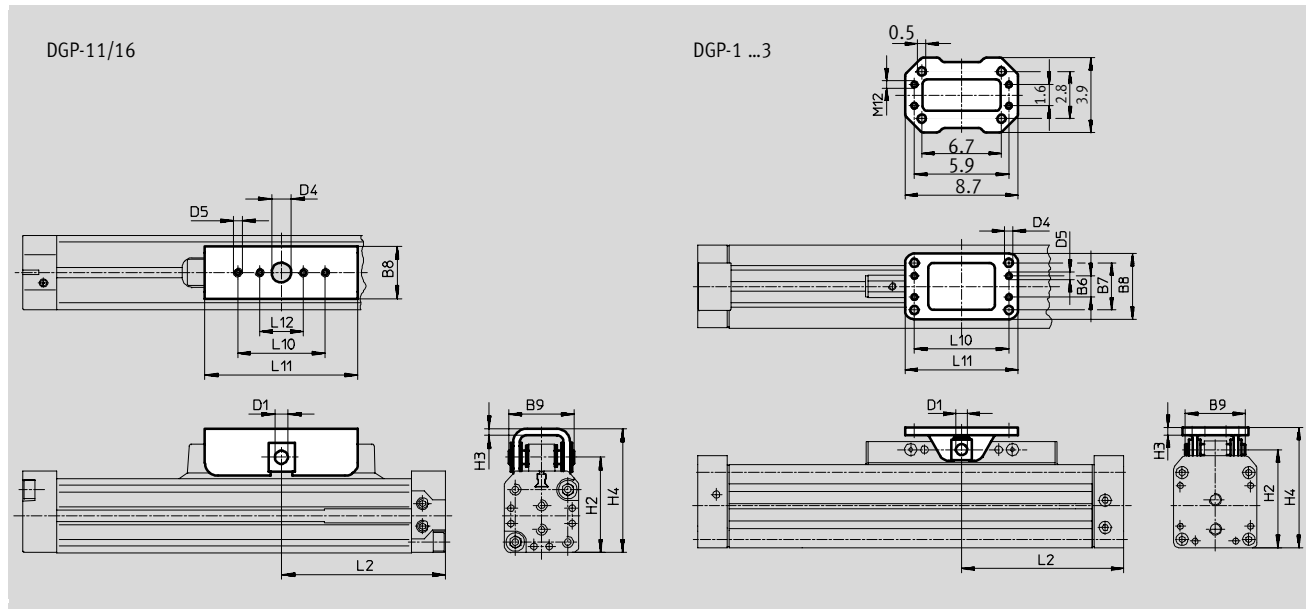
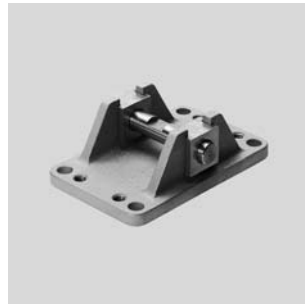
Accessories

FESTO

Moment compensator FKP

For DGP

Material:
Galvanized steel



Dimensions and ordering data																
For Ø	B6	B7	B8	B9	D1	D4	D5	H2	H3	H4	L2	L10	L11	L12	Part No.	Type
[in]					Ø	Ø										
11/16	-	-	1.0	1.2	0.2	0.4	M4	1.7	0.1	2.3	10.2	1.6	2.8	0.8	158474	FKP-18
1	0.8	1.6	2.1	2.0	0.3	0.2	M5	2.2	0.2	3.0	3.9	2.6	3.1	-	150801	FKP-25/32
1-1/4	0.8	1.6	2.1	2.0	0.3	0.2	M5	2.6	0.2	3.3	4.9	2.6	3.1	-	150801	FKP-25/32
1-5/8	0.9	1.7	2.3	2.4	0.4	0.3	M6	3.1	0.2	3.9	5.9	3.0	3.5	-	150802	FKP-40
2	0.9	2.0	2.8	2.5	0.5	0.4	M8	4.2	0.3	5.1	6.9	4.0	4.8	-	150803	FKP-50/63
2-1/2	0.9	2.0	2.8	2.5	0.5	0.4	M8	4.8	0.3	5.7	7.9	4.0	4.8	-	150803	FKP-50/63
3	-	-	-	3.7	0.8	-	-	6.2	0.5	7.7	-	-	-	-	158457	FKP-80

Dimensions are in inches, unless otherwise noted.

Linear actuators DGP/DGPL - Inch Series

Accessories

Shock absorber YSR-...-C

For DGPL

Material:

Housing: galvanized steel; piston rod:
high-alloy steel,
seals: nitrile rubber, polyurethane
Free of copper, PTFE and silicone



Ordering data			
For Ø [in]	Weight [oz]	Part No.	Type
11/16	1.8	34571	YSR-8-8-C
1	2.5	34572	YSR-12-12-C
1-1/4	2.5	34572	YSR-12-12-C
1-5/8	4.9	34573	YSR-16-20-C
2	4.9	34573	YSR-16-20-C
2-1/2	8.5	34574	YSR-20-25-C
3	8.5	34574	YSR-20-25-C

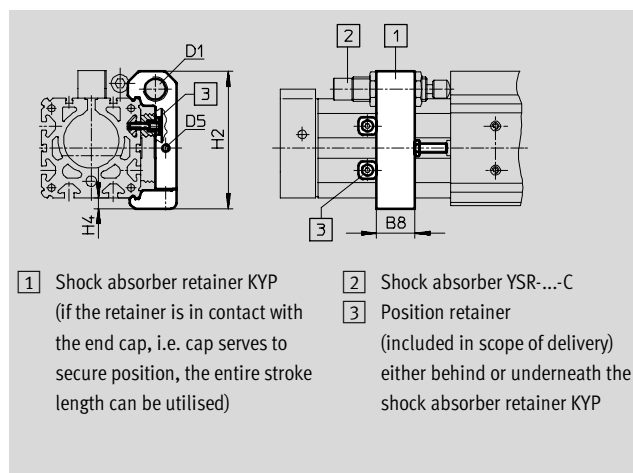
Shock absorber retainer KYP

For DGPL

Material:

Retainer: Aluminum
Sleeve: Corrosion resistant steel

Note: shock absorber not included



Dimensions and ordering data								
For Ø [in]	B8	D1	D5	H2	H4	Weight [oz]	Part No.	Type
11/16	0.6	M12x1	M4	2.0	0.2	2.3	158907	KYP-18
1	0.7	M16x1	M5	2.7	0.2	3.4	158908	KYP-25
1-1/4	1.0	M16x1	M5	3.1	0.3	4.6	158909	KYP-32
1-5/8	1.3	M22x1.5	M5	4.0	0.3	7.4	158910	KYP-40
2	1.4	M22x1.5	M8	4.9	0.4	14.6	158911	KYP-50
2-1/2	1.7	M26x1.5	M10	6.0	0.5	21.5	158912	KYP-63
3	1.7	M26x1.5	M10	7.1	0.5	27.3	158913	KYP-80

Dimensions are in inches, unless otherwise noted.

Linear actuators DGP/DGPL - Inch Series

Accessories


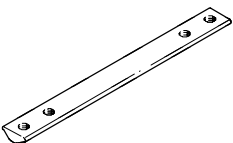






Ordering data – One-way flow control valves					
	Connection		Material	Part No.	Type
	Thread	For tubing OD (inch)			
	10-32 UNF	5/32	Housing: Polymer SealS: NBR	165008	GRLA-10-32-UNF-QS-5/32-U
		1/4		192753	GRLA-10-32-UNF-QS-1/4-U
	1/8" NPT	3/16		190941	GRLA-1/8-NPT-QS-3/16-U
		1/4		165010	GRLA-1/8-NPT-QS-1/4-U
	1/4" NPT	1/4		165011	GRLA-1/4-NPT-QS-1/4-U
		5/16		165014	GRLA-1/4-NPT-QS-5/16-U
		3/8		165015	GRLA-3/8-NPT-QS-5/16-U
	3/8" NPT	5/16		190950	GRLA-3/8-NPT-QS-3/8-U
		3/8		190952	GRLA-1/2-NPT-QS-3/8-U
	1/2" NPT	3/8		190953	GRLA-1/2-NPT-QS-1/2-U
		1/2			

Dimensions are in inches, unless otherwise noted.

Linear actuators DGP/DGPL - Inch Series

Accessories

Ordering data for DGP/DGPL					
	For Ø [in]	Remarks	Part No.	Type	PU ¹⁾
Slot nut NST					
	1	For mounting slot	526091	NST-HMV-M4	1
	1-1/4, 1-5/8		150914	NST-5-M5	1
	2, 2-1/2, 3		150915	NST-8-M6	1
Slot nut NSTL					
	1	For slide	158410	NSTL-25	1
	1-1/4		158411	NSTL-32	1
	1-5/8		158412	NSTL-40	1
	2		158413	NSTL-50	1
	2-1/2		158414	NSTL-63	1
	3		161356	NSTL-80	1
Alignment pin/sleeve ZBS/ZBH					
	11/16	For slide	150928	ZBS-5	10
	1... 3		150927	ZBH-9	10
Central mounting SLZZ					
	1	For slide	150900	SLZZ-16/10	1
	1-1/4, 1-5/8		150901	SLZZ-25/16	
	2 ... 3		150904	SLZZ-50/40	1
Slot cover ABP					
	1-1/4, 1-5/8	For mounting slot each 1.6 ft	151681	ABP-5	2
	2, 2-1/2, 3		151682	ABP-8	
Slot cover ABP-S					
	11/16 ... 3	For sensor slot each 1.6 ft	151680	ABP-5-S	2



1) Packaging unit quantity



Dimensions are in inches, unless otherwise noted.



Linear actuators DGP/DGPL - Inch Series

Accessories

FESTO

Ordering data – Proximity sensors for slot type 8, magneto-resistive								
	Mounting	Switch output	Electrical connection			Cable length [ft]	Part No.	Type
			Cable	Plug M8	Plug M12			
Normally open contact								
	Insertable from above	PNP	3-wire	–	–	8.2	525898	SMT-8F-PS-24V-K2.5-OE
		NPN		–	–		525909	SMT-8F-NS-24V-K2.5-OE
		–	2-wire	–	–	8.2	525908	SMT-8F-ZS-24V-K2.5-OE
		PNP	–	3-pin	–	1.0	525899	SMT-8F-PS-24V-K0.3-M8D
		NPN			–		525910	SMT-8F-NS-24V-K0.3-M8D
PNP	–	–	3-pin	1.0	525900	SMT-8F-PS-24V-K0.3-M12		
	Insertable from end, flush with the cylinder profile	PNP	3-wire	–	–	8.2	175436	SMT-8-PS-K-LED-24-B
		–	–	3-pin	–	1.0	175484	SMT-8-PS-S-LED-24-B

Ordering data – Proximity sensors for slot type 8, magnetic reed						
	Mounting	Electrical connection		Cable length [ft]	Part No.	Type
		Cable	Plug M8			
Normally open contact						
	Insertable from above	3-wire	–	8.2	525895	SME-8F-DS-24V-K2.5-OE
			–	16.4	525897	SME-8F-DS-24V-K5.0-OE
		2-wire	–	8.2	525907	SME-8F-ZS-24V-K2.5-OE
		–	3-pin	1.0	525896	SME-8F-DS-24V-K0.3-M8D
	Insertable from end, flush with the cylinder profile	3-wire	–	8.2	150855	SME-8-K-LED-24
		–	3-pin	1.0	150857	SME-8-S-LED-24

Ordering data – Plug sockets							
	Mounting	Switch output		Connection	Cable length [ft]	Part No.	Type
		PNP	NPN				
Straight socket							
	M8 locknut	■	■	3-pin	8.2	159420	SIM-M8-3GD-2.5-PU
		■	■		16.4	159421	SIM-M8-3GD-5-PU
Angled socket							
	M8 locknut	■	■	3-pin	8.2	159422	SIM-M8-3WD-2.5-PU
		■	■		16.4	159423	SIM-M8-3WD-5-PU