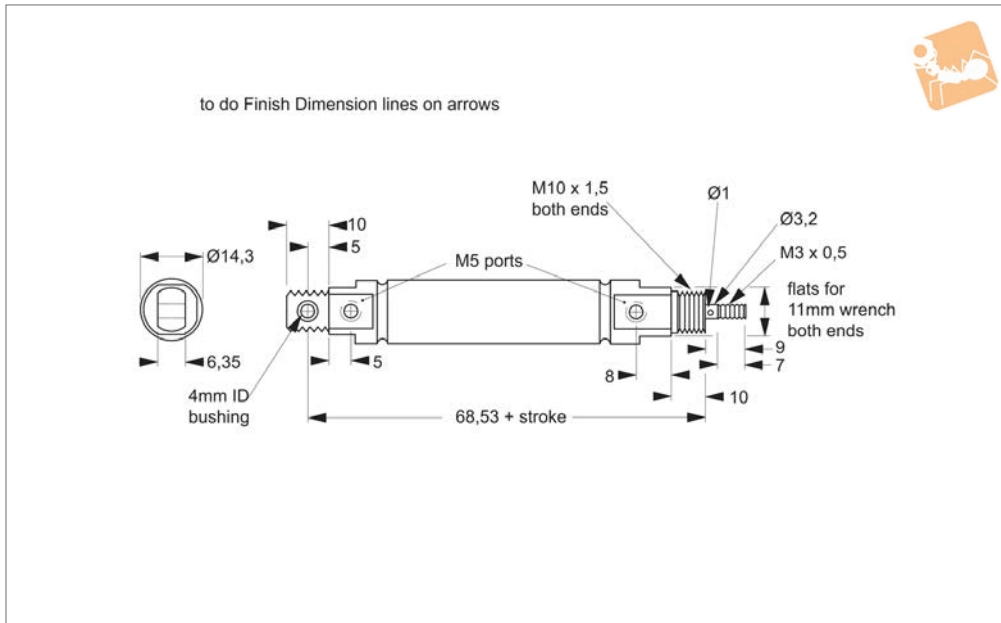




# Anti - Stiction Air Cylinder - 9.3mm universal mounts

Cylinders



L4500

CYLINDERS

### Material

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

### Technical Notes

Ultra low friction. Corrosion resistant, no need for lubrication. Operating temperature range: -55°C to

+150°C

For applications operating below -20°C please add -ET to part number>

Suitable for vacuum actuation.

Piston area = 67.7mm<sup>2</sup>

Force output at max pressure on rear side = 47.4N

Force output at max pressure on rod side = 42N

Piston friction as % of load (without side load) = 1% - 2%.

Min pressure differential required for actuation = < 0.0015 MPa

Force factor rear side = 67.7N

Force factor rod side - 60N

(factor x pressure (MPa) = force output (N))

\*max leak measured at pressure of 0.34 MPa.

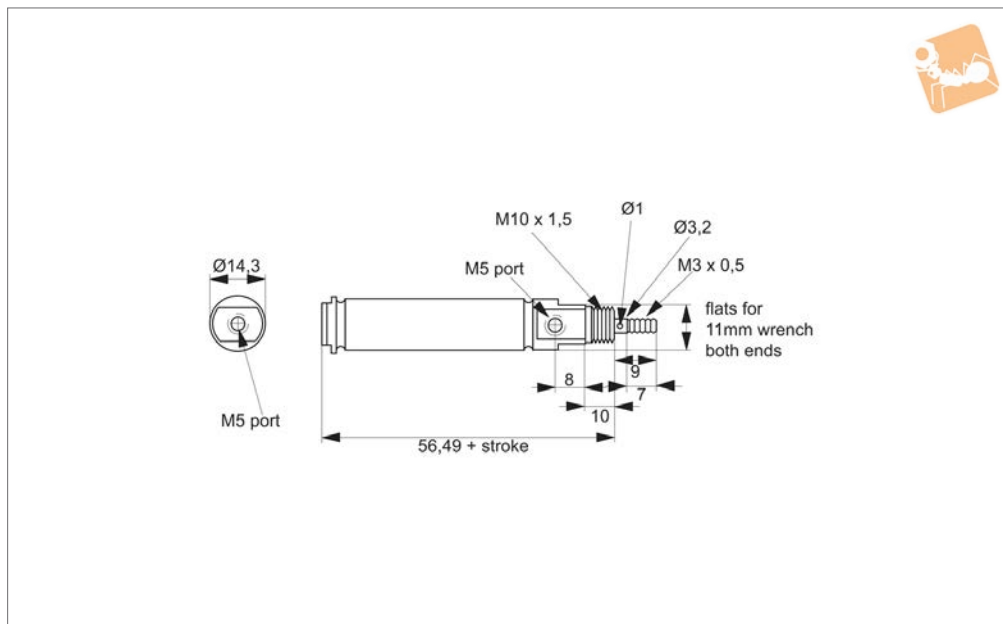
Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/mm	Weight g
L4500.012	9.3	12.5	81.03	0.7	1.16	2.2	36.39
L4500.025	9.3	25.0	93.53	0.7	1.16	2.2	41.08
L4500.037	9.3	37.5	106.03	0.7	1.16	2.2	45.76
L4500.050	9.3	50.0	118.53	0.7	1.16	2.2	50.45
L4500.075	9.3	75.0	143.53	0.7	1.16	2.2	59.83
L4500.100	9.3	100.0	168.53	0.7	1.16	2.2	69.20
L4500.125	9.3	125.0	193.53	0.7	1.16	2.2	78.58
L4500.150	9.3	150.0	218.53	0.7	1.16	2.2	87.95
L4500.175	9.3	175.0	243.53	0.7	1.16	2.2	97.33
L4500.200	9.3	200.0	268.53	0.7	1.16	2.2	106.70
L4500.225	9.3	225.0	293.53	0.7	1.16	2.2	116.08
L4500.250	9.3	250.0	318.53	0.7	1.16	2.2	125.45
L4500.275	9.3	275.0	343.53	0.7	1.16	2.2	134.83
L4500.300	9.3	300.0	368.53	0.7	1.16	2.2	144.20



CYLINDERS



**L4502**



**Material**

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

**Technical Notes**

Ultra low friction. Corrosion resistant, no need for lubrication. Operating temperature range: -55°C to

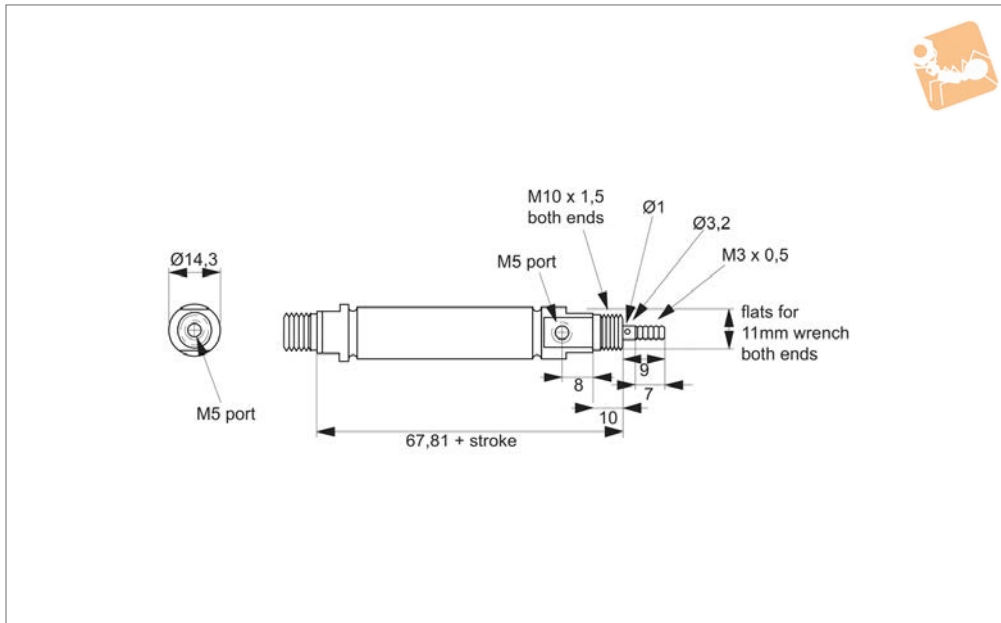
+150°C For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation. Piston area = 67.7mm<sup>2</sup> Force output at max pressure on rear side = 47.4N Force output at max pressure on rod side = 42N Piston friction as % of load (without side load) = 1% - 2%.

Min pressure differential required for actuation = < 0.0015 MPa Force factor rear side = 67.7N Force factor rod side = 60N (factor x pressure (MPa) = force output (N) ) \*max leak measured at pressure of 0.34 MPa.

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/mm	Weight g
L4502.012	9.3	12.5	68.99	0.7	1.16	2.2	36.39
L4502.025	9.3	25.0	81.49	0.7	1.16	2.2	41.08
L4502.037	9.3	37.5	93.99	0.7	1.16	2.2	45.76
L4502.050	9.3	50.0	106.49	0.7	1.16	2.2	50.45
L4502.075	9.3	75.0	131.49	0.7	1.16	2.2	59.83
L4502.100	9.3	100.0	156.49	0.7	1.16	2.2	69.20
L4502.125	9.3	125.0	181.49	0.7	1.16	2.2	78.58
L4502.150	9.3	150.0	206.49	0.7	1.16	2.2	87.95
L4502.175	9.3	175.0	231.49	0.7	1.16	2.2	97.33
L4502.200	9.3	200.0	256.49	0.7	1.16	2.2	106.70
L4502.225	9.3	225.0	281.49	0.7	1.16	2.2	116.08
L4502.250	9.3	250.0	306.49	0.7	1.16	2.2	125.45
L4502.275	9.3	275.0	331.49	0.7	1.16	2.2	134.83
L4502.300	9.3	300.0	356.49	0.7	1.16	2.2	144.20



# Anti - Stiction Air Cylinder - 9.3mm front & rear stud mount



**L4504**

CYLINDERS

**Material**

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

**Technical Notes**

Ultra low friction. Corrosion resistant, no need for lubrication. Operating temperature range: -55°C to

+150°C

For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation.

Piston area = 67.7mm<sup>2</sup>

Force output at max pressure on rear side = 47.4N

Force output at max pressure on rod side = 42N

Piston friction as % of load (without side

load) = 1% - 2%.

Min pressure differential required for actuation = < 0.0015 MPa

Force factor rear side = 67.7N

Force factor rod side - 60N

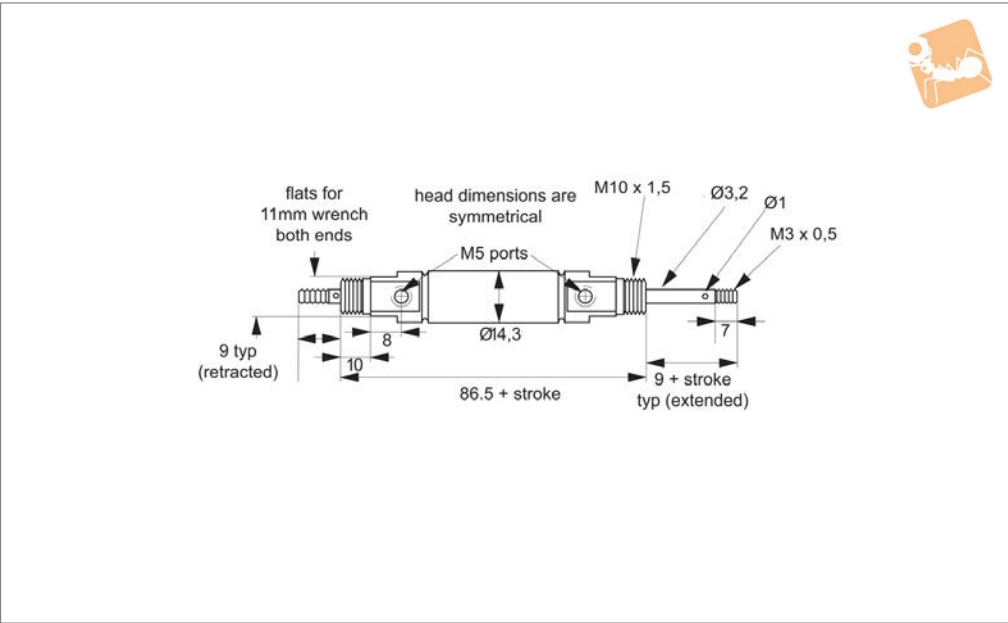
(factor x pressure (MPa) = force output (N))

\* max leak measured at pressure of 0.34 MPa.

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/mm	Weight g
L4504.012	9.3	12.5	80.31	0.7	1.16	2.2	36.39
L4504.025	9.3	25.0	92.81	0.7	1.16	2.2	41.08
L4504.037	9.3	37.5	105.31	0.7	1.16	2.2	45.76
L4504.050	9.3	50.0	117.81	0.7	1.16	2.2	50.45
L4504.075	9.3	75.0	142.81	0.7	1.16	2.2	59.83
L4504.100	9.3	100.0	167.81	0.7	1.16	2.2	69.20
L4504.125	9.3	125.0	192.81	0.7	1.16	2.2	78.58
L4504.150	9.3	150.0	217.81	0.7	1.16	2.2	87.95
L4504.175	9.3	175.0	242.81	0.7	1.16	2.2	97.33
L4504.200	9.3	200.0	267.81	0.7	1.16	2.2	106.70
L4504.225	9.3	225.0	292.81	0.7	1.16	2.2	116.08
L4504.250	9.3	250.0	317.81	0.7	1.16	2.2	125.45
L4504.275	9.3	275.0	342.81	0.7	1.16	2.2	134.83
L4504.300	9.3	300.0	367.81	0.7	1.16	2.2	144.20



L4506



**Material**

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

**Technical Notes**

Ultra low friction. Corrosion resistant, no need for lubrication.  
Operating temperature range: -55°C to

+150°C

For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation.

Piston area = 67.7mm<sup>2</sup>

Force output at max pressure on rear side = 47.4N

Force output at max pressure on rod side = 42N

Piston friction as % of load (without side

load) = 1% - 2%.

Min pressure differential required for actuation = < 0.0015 MPa

Force factor rear side = 67.7N

Force factor rod side = 60N

(factor x pressure (MPa) = force output (N))

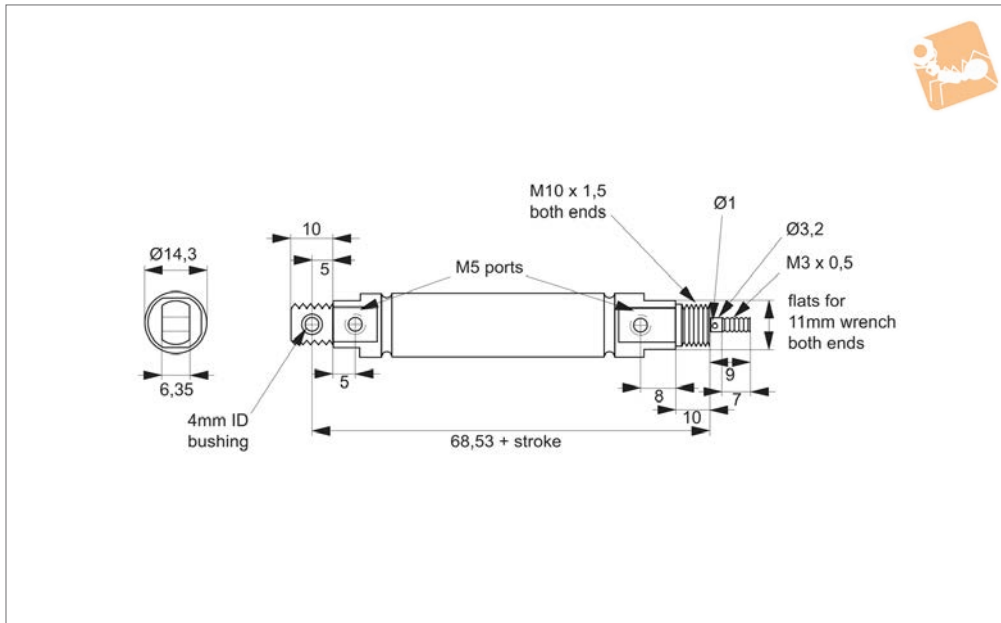
\* max leak measured at pressure of 0.34 MPa.

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/mm	Weight g
L4506.012	9.3	12.5	99	0.7	1.16	2.2	36.39
L4506.025	9.3	25.0	111.5	0.7	1.16	2.2	41.08
L4506.037	9.3	37.5	124	0.7	1.16	2.2	45.76
L4506.050	9.3	50.0	136.5	0.7	1.16	2.2	50.45
L4506.075	9.3	75.0	161.5	0.7	1.16	2.2	59.83
L4506.100	9.3	100.0	186.5	0.7	1.16	2.2	69.20
L4506.125	9.3	125.0	211.5	0.7	1.16	2.2	78.58
L4506.150	9.3	150.0	236.5	0.7	1.16	2.2	87.95
L4506.175	9.3	175.0	261.5	0.7	1.16	2.2	97.33
L4506.200	9.3	200.0	286.5	0.7	1.16	2.2	106.70
L4506.225	9.3	225.0	311.5	0.7	1.16	2.2	116.08
L4506.250	9.3	250.0	336.5	0.7	1.16	2.2	125.45
L4506.275	9.3	275.0	361.5	0.7	1.16	2.2	134.83
L4506.300	9.3	300.0	386.5	0.7	1.16	2.2	144.20



# Anti - Stiction Air Cylinder - 9.3mm

universal mount, air extend, spring return



L4508

CYLINDERS

### Material

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

### Technical Notes

Ultra low friction. Corrosion resistant, no need for lubrication. Operating temperature range: -55°C to

+150°C

For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation.

Piston area = 67.7mm<sup>2</sup>

Force output at max pressure on rear side = 47.4N

Force output at max pressure on rod side = 42N

Piston friction as % of load (without side

load) = 1% - 2%.

Min pressure differential required for actuation = < 0.0015 MPa

Force factor rear side = 67.7N

Force factor rod side = 60N

(factor x pressure (MPa) = force output (N))

\* max leak measured at pressure of 0.34 MPa.

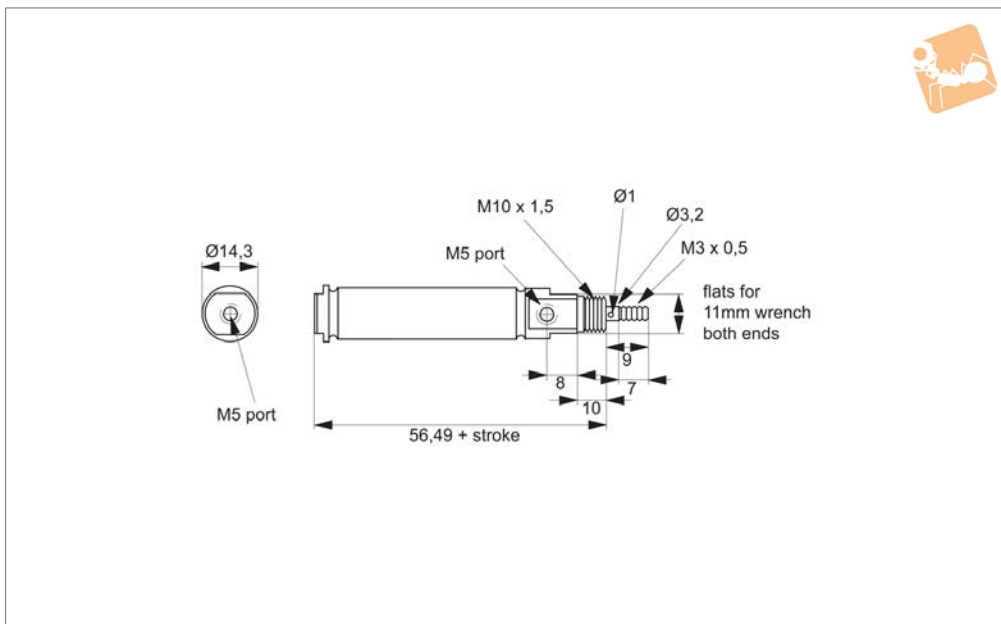
Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston SL/min max.	Leak rate by rod SL/mm max.	Reset spring force rod extended N	Reset spring force rod retracted N	Weight g
L4508.012	9,3	12,5	81,03	0,7	1,16	2,2	0,8	0,5	36,39
L4508.025	9,3	25,0	93,53	0,7	1,16	2,2	0,8	0,4	41,08
L4508.037	9,3	37,5	106,03	0,7	1,16	2,2	0,8	0,2	45,76



CYLINDERS



**L4510**



**Material**

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

**Technical Notes**

Ultra low friction. Corrosion resistant, no need for lubrication. Operating temperature range: -55°C to

+150°C. For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation. Piston area = 67.7mm<sup>2</sup> Force output at max pressure on rear side = 47.4N Force output at max pressure on rod side = 42N Piston friction as % of load (without side load) = 1% - 2%.

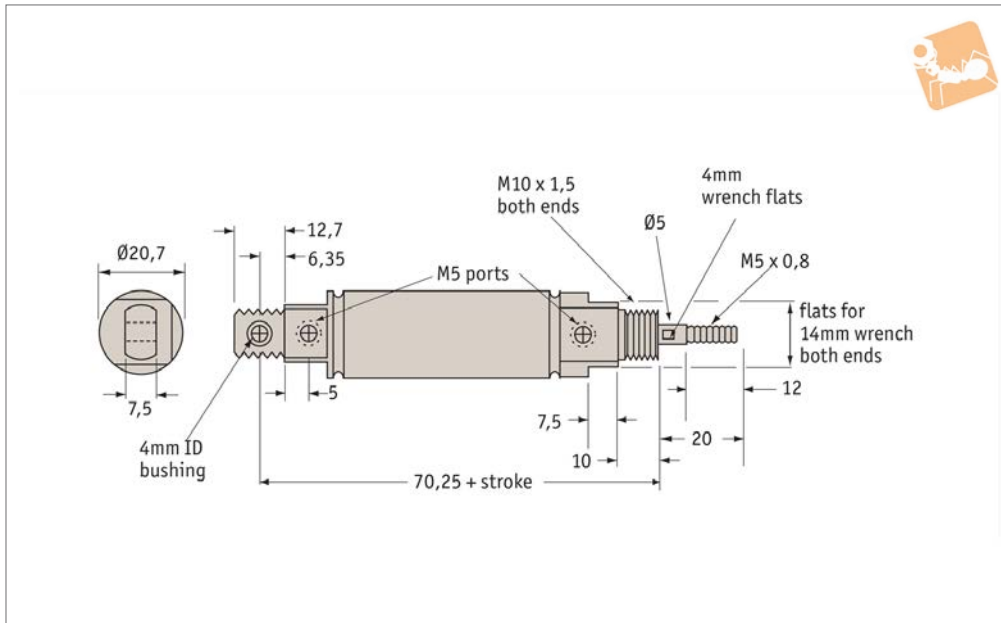
Min pressure differential required for actuation = < 0.0015 MPa Force factor rear side = 67.7N Force factor rod side = 60N (factor x pressure (MPa) = force output (N) ) \*max leak measured at pressure of 0.34 MPa.

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston SL/min max.	Leak rate by rod SL/mm max.	Reset spring force rod extended N	Reset spring force rod retracted N	Weight g
L4510.012	9,3	12,5	68,99	0,7	1,16	2,2	0,8	0,5	36,39
L4510.025	9,3	25,0	81,49	0,7	1,16	2,2	0,8	0,4	41,08
L4510.037	9,3	37,5	93,99	0,7	1,16	2,2	0,8	0,2	45,76



# Anti-Stiction Air Cylinder - universal mount

## Cylinders



**L4520**

CYLINDERS

### Material

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless Steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

### Technical Notes

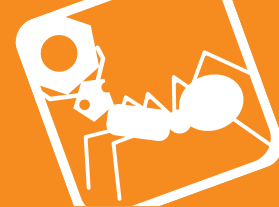
Ultra low friction.  
Corrosion resistant, no need for lubrication.

Operating temp range: -55°C to +150°C.  
For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation.  
Piston area = 198mm<sup>2</sup>.  
Force output at max pressure on rear side = 139N.  
Force output at max pressure on rod side = 125N.  
Piston friction as % of load (without side

load) = 1% - 2%.  
Min pressure differential required for actuation = <0.0015 MPa.  
Force factor rear side = 198N.  
Force factor rod side = 178N.  
(factor x pressure (MPa) = force output (N)).  
\*max leak measured at pressure of 0.34 MPa.

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/min	Weight g
L4520.012	15.9	12.5	82.75	0.7	1.39	2.6	72.38
L4520.025	15.9	25.0	95.25	0.7	1.39	2.6	80.15
L4520.037	15.9	37.5	107.75	0.7	1.39	2.6	87.93
L4520.050	15.9	50.0	120.25	0.7	1.39	2.6	95.70
L4520.075	15.9	75.0	145.25	0.7	1.39	2.6	111.25
L4520.100	15.9	100.0	170.25	0.7	1.39	2.6	126.80
L4520.125	15.9	125.0	195.25	0.7	1.39	2.6	142.35
L4520.150	15.9	150.0	220.50	0.7	1.39	2.6	157.90
L4520.175	15.9	175.0	245.25	0.7	1.39	2.6	173.45
L4520.200	15.9	200.0	270.25	0.7	1.39	2.6	189.00
L4520.225	15.9	225.0	295.25	0.7	1.39	2.6	204.55
L4520.250	15.9	250.0	320.25	0.7	1.39	2.6	220.10
L4520.275	15.9	275.0	345.25	0.7	1.39	2.6	235.65
L4520.300	15.9	300.0	370.25	0.7	1.39	2.6	251.20

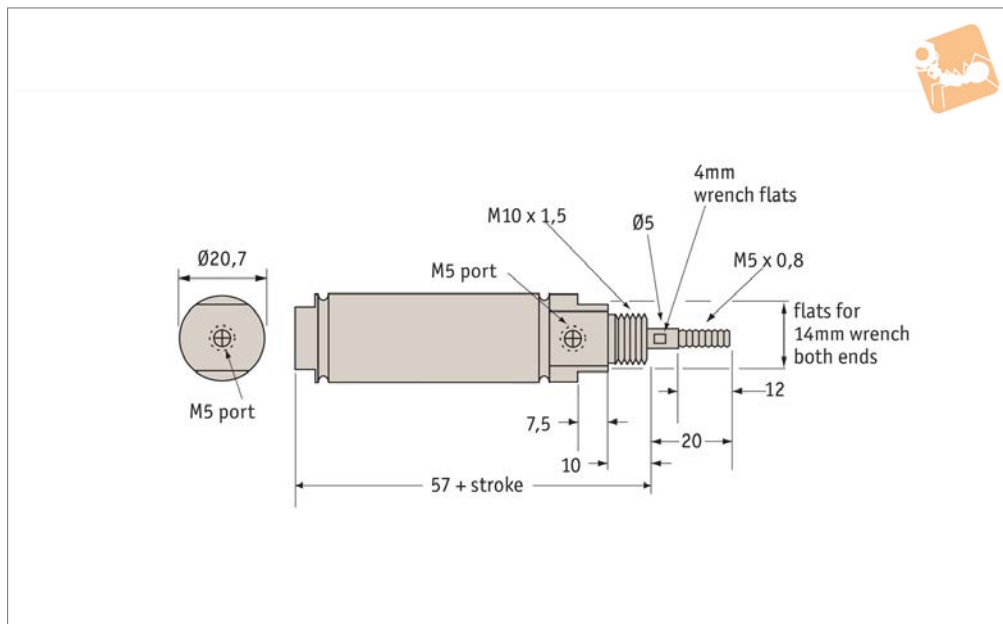




CYLINDERS



**L4522**



**Material**

Carbon/graphite piston. Stainless Steel rod (AISI 303). Stainless Steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

**Technical Notes**

Ultra low friction.  
Corrosion resistant, no need for lubrication.

Operating temp range: -55°C to +150°C.  
For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation.  
Piston area = 198mm<sup>2</sup>.  
Force output at max pressure on rear side = 139N.  
Force output at max pressure on rod side = 125N.  
Piston friction as % of load (without side

load) = 1% - 2%.  
Min pressure differential required for actuation = <0.0015 MPa.  
Force factor rear side = 198N.  
Force factor rod side = 178N.  
(factor x pressure (MPa) = force output (N)).  
\*max leak measured at pressure of 0.34 MPa.

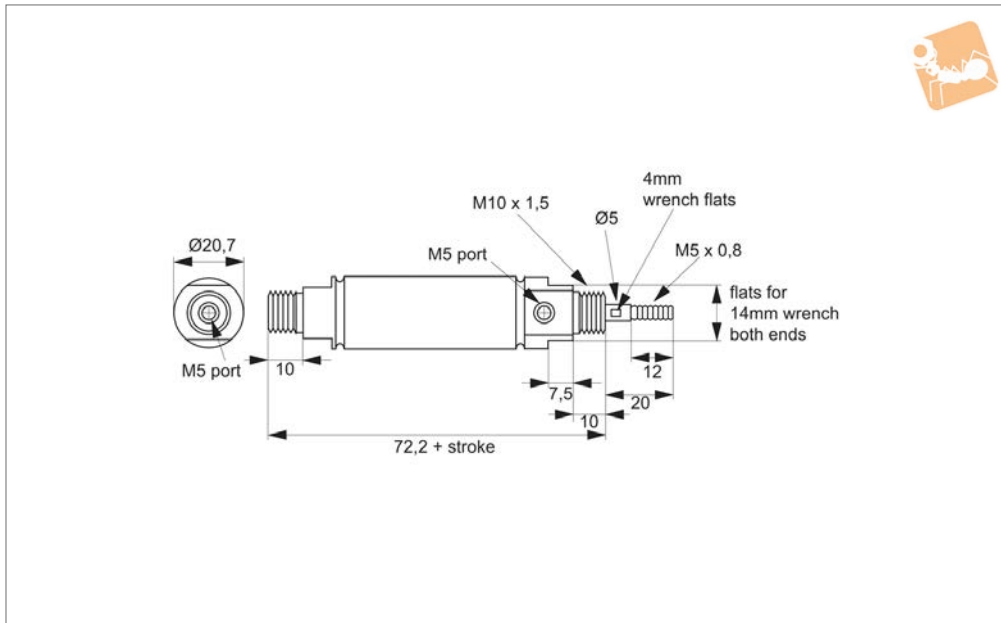
Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/min	Weight g
L4522.012	15.9	12.5	69.5	0.7	1.39	2.6	72.38
L4522.025	15.9	25.0	82	0.7	1.39	2.6	80.15
L4522.037	15.9	37.5	94.5	0.7	1.39	2.6	87.93
L4522.050	15.9	50.0	107	0.7	1.39	2.6	95.70
L4522.075	15.9	75.0	132	0.7	1.39	2.6	111.25
L4522.100	15.9	100.0	157	0.7	1.39	2.6	126.80
L4522.125	15.9	125.0	182	0.7	1.39	2.6	142.35
L4522.150	15.9	150.0	207	0.7	1.39	2.6	157.90
L4522.175	15.9	175.0	232	0.7	1.39	2.6	173.45
L4522.200	15.9	200.0	257	0.7	1.39	2.6	189.00
L4522.225	15.9	225.0	282	0.7	1.39	2.6	204.55
L4522.250	15.9	250.0	307	0.7	1.39	2.6	220.10
L4522.275	15.9	275.0	332	0.7	1.39	2.6	235.65
L4522.300	15.9	300.0	357	0.7	1.39	2.6	251.20





# Anti-Stiction Air Cylinder - 15.9mm front & rear stud mount

Cylinders



L4524

CYLINDERS

### Material

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

### Technical Notes

Ultra low friction.  
Corrosion resistant, no need for lubrication.

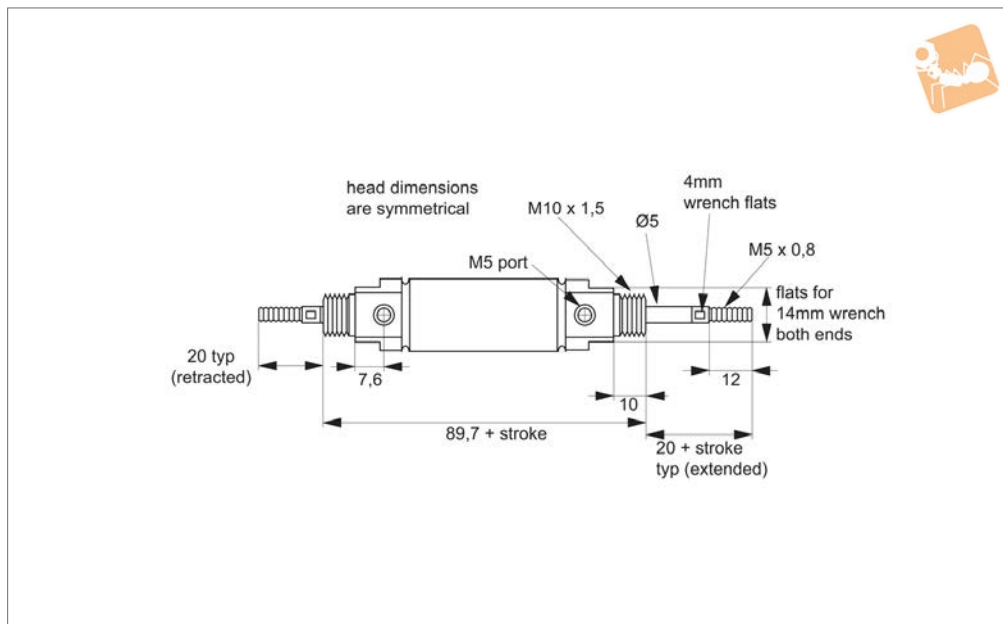
Operating temp range: -55°C to +150°C.  
For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation. Piston area = 198mm<sup>2</sup>.  
Force output at max pressure on rear side = 139N.  
Force output at max pressure on rod side = 125N.  
Piston friction as % of load (without side load) = 1% - 2%.

Min pressure differential required for actuation = <0.0015 MPa.  
Force factor rear side = 198N.  
Force factor rod side = 178N.  
(factor x pressure (MPa) = force output (N)).  
\*max leak measured at pressure of 0.34 MPa.

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/min	Weight g
L4524.012	15.9	12.5	84.7	0.7	1.39	2.6	72.38
L4524.025	15.9	25.0	97.2	0.7	1.39	2.6	80.15
L4524.037	15.9	37.5	109.7	0.7	1.39	2.6	87.93
L4524.050	15.9	50.0	122.2	0.7	1.39	2.6	95.70
L4524.075	15.9	75.0	147.2	0.7	1.39	2.6	111.25
L4524.100	15.9	100.0	172.2	0.7	1.39	2.6	126.80
L4524.125	15.9	125.0	197.2	0.7	1.39	2.6	142.35
L4524.150	15.9	150.0	222.2	0.7	1.39	2.6	157.90
L4524.175	15.9	175.0	247.2	0.7	1.39	2.6	173.45
L4524.200	15.9	200.0	272.2	0.7	1.39	2.6	189.00
L4524.225	15.9	225.0	297.2	0.7	1.39	2.6	204.55
L4524.250	15.9	250.0	322.2	0.7	1.39	2.6	220.10
L4524.275	15.9	275.0	347.2	0.7	1.39	2.6	235.65
L4524.300	15.9	300.0	372.2	0.7	1.39	2.6	251.20



**L4526**



**Material**

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

**Technical Notes**

Ultra low friction.  
Corrosion resistant, no need for lubrication.

Operating temp range: -55°C to +150°C.  
For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation. Piston area = 198mm².  
Force output at max pressure on rear side = 139N.  
Force output at max pressure on rod side = 125N.  
Piston friction as % of load (without side load) = 1% - 2%.

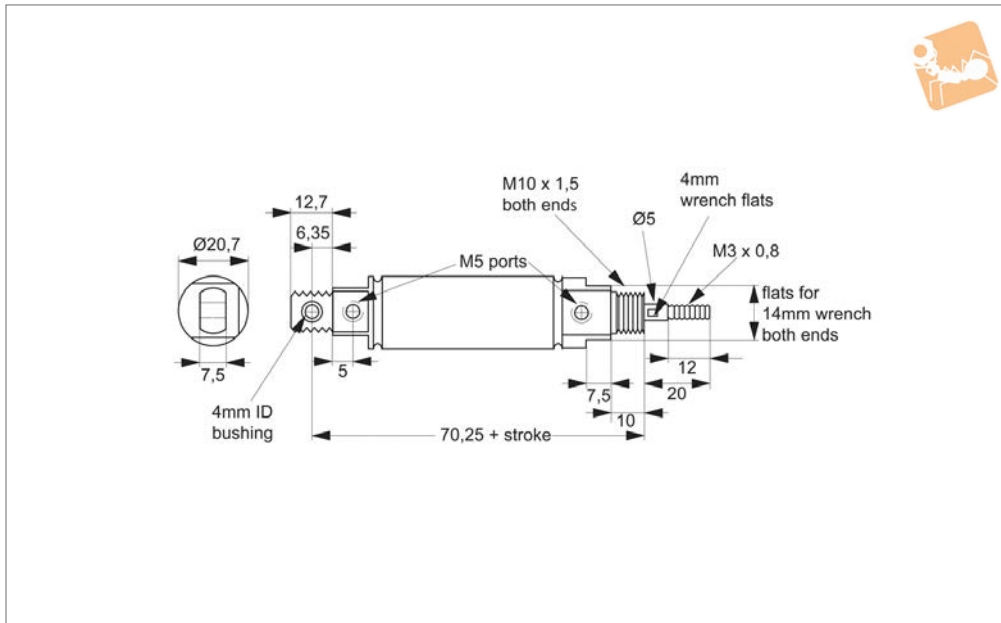
Min pressure differential required for actuation = <0.0015 MPa.  
Force factor rear side = 198N.  
Force factor rod side = 178N.  
(factor x pressure (MPa) = force output (N)).  
\*max leak measured at pressure of 0.34 MPa.

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/min	Weight g
L4526.012	15.9	12.5	102.2	0.7	1.39	2.6	91.13
L4526.025	15.9	25.0	114.7	0.7	1.39	2.6	101.80
L4526.037	15.9	37.5	127.2	0.7	1.39	2.6	112.48
L4526.050	15.9	50.0	139.7	0.7	1.39	2.6	123.15
L4526.075	15.9	75.0	164.7	0.7	1.39	2.6	144.50
L4526.100	15.9	100.0	189.7	0.7	1.39	2.6	165.85
L4526.125	15.9	125.0	214.7	0.7	1.39	2.6	187.20
L4526.150	15.9	150.0	239.7	0.7	1.39	2.6	208.55
L4526.175	15.9	175.0	264.7	0.7	1.39	2.6	229.90
L4526.200	15.9	200.0	289.7	0.7	1.39	2.6	251.25
L4526.225	15.9	225.0	314.7	0.7	1.39	2.6	272.60
L4526.250	15.9	250.0	339.7	0.7	1.39	2.6	293.95
L4526.275	15.9	275.0	364.7	0.7	1.39	2.6	315.30
L4526.300	15.9	300.0	389.7	0.7	1.39	2.6	336.65



# Anti-Stiction Air Cylinder - 15.9mm

universal mount, air extended, spring return



**L4528**

CYLINDERS

**Material**

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

**Technical Notes**

Ultra low friction.  
Corrosion resistant, no need for lubrication.

tion.  
Operating temp range: -55°C to +150°C.  
Suitable for vacuum actuation./symbol  
Piston area = 198mm<sup>2</sup>.  
Force output at max pressure on rear side = 139N.  
Force output at max pressure on rod side = 125N.  
Piston friction as % of load (without side

load) = 1% - 2%.  
Min pressure differential required for actuation = <math>\lt; 0.0015 \text{ MPa}</math>. Force factor rear side = 198N. Force factor rod side = 178N. (factor x pressure (MPa) = force output (N)).  
\*max leak measured at pressure of 0.34 MPa.

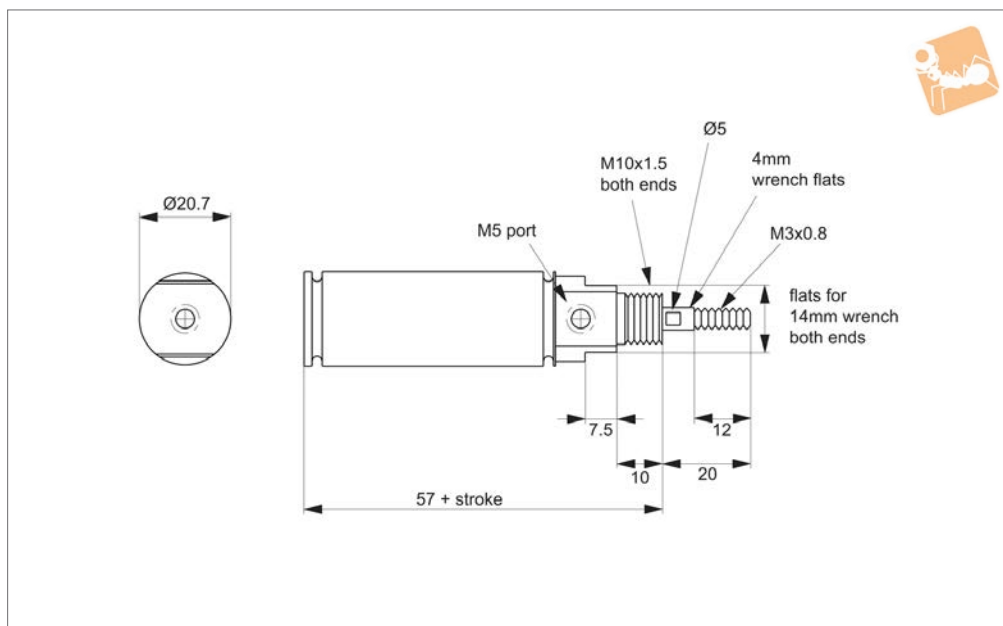
Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston SL/min max.	Leak rate by rod SL/mm max.	Reset spring force rod extended N	Reset spring force rod retracted N	Weight g
L4528.012	15,9	12,5	82,75	0,7	139	125	1,1	1,0	72,38
L4528.025	15,9	25,0	95,25	0,7	139	125	1,1	0,9	80,15
L4528.037	15,9	37,5	107,75	0,7	139	125	1,1	0,8	87,93
L4528.050	15,9	50,0	120,25	0,7	139	125	1,1	0,7	95,70



CYLINDERS



**L4530**



**Material**

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

**Technical Notes**

Ultra low friction.  
Corrosion resistant, no need for lubrication.

Operating temp range: -55°C to +150°C.  
For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation.  
Piston area = 198mm<sup>2</sup>.  
Force output at max pressure on rear side = 139N.  
Force output at max pressure on rod side = 125N.  
Piston friction as % of load (without side

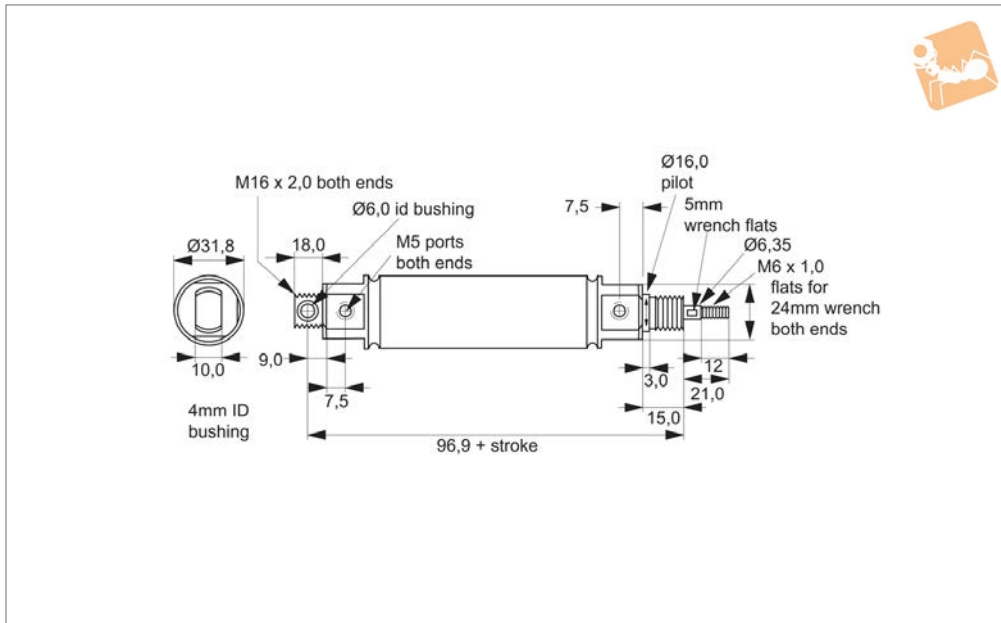
load) = 1% - 2%.  
Min pressure differential required for actuation = <0.0015 MPa.  
Force factor rear side = 198N.  
Force factor rod side = 178N.  
(factor x pressure (MPa) = force output (N)).  
\* max leak measured at pressure of 0.34 MPa.

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston SL/min max.	Leak rate by rod SL/mm max.	Reset spring force rod extended N	Reset spring force rod retracted N	Weight g
L4530.012	15,9	12,5	69,5	0,7	139	125	1,1	1,0	72,38
L4530.025	15,9	25	82	0,7	139	125	1,1	0,9	80,15
L4530.037	15,9	37,5	94,5	0,7	139	125	1,1	0,8	87,93
L4530.050	15,9	50	107	0,7	139	125	1,1	0,7	95,70



# Anti-Stiction Air Cylinder - 24mm universal mount

Cylinders



L4540

CYLINDERS

### Material

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

### Technical Notes

Ultra low friction.  
Corrosion resistant, no need for lubrication.

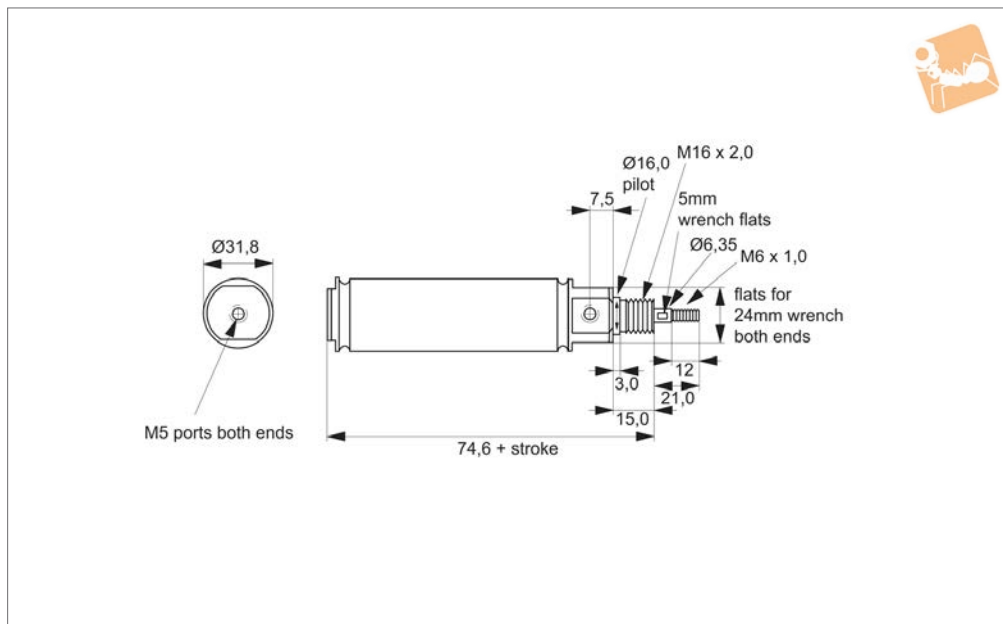
Operating temp range: -55°C to +150°C.  
For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation.  
Piston area = 452.5mm<sup>2</sup>.  
Force output at max pressure on rear side = 316.6N.  
Force output at max pressure on rod side = 294.5N.  
Piston friction as % of load (without side

load) = 1% - 2%.  
Min pressure differential required for actuation = <0.0015 MPa.  
Force factor rear side = 452.5N.  
Force factor rod side = 420.8N.  
(factor x pressure (MPa) = force output (N)).  
\*max leak measured at pressure of 0.34 MPa.

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/min	Weight g
L4540.012	24.0	12.5	109.4	0.7	2.2	2.6	172.49
L4540.025	24.0	25.0	121.9	0.7	2.2	2.6	187.81
L4540.037	24.0	37.5	134.4	0.7	2.2	2.6	203.12
L4540.050	24.0	50.0	146.9	0.7	2.2	2.6	218.43
L4540.075	24.0	75.0	171.9	0.7	2.2	2.6	249.06
L4540.100	24.0	100.0	196.9	0.7	2.2	2.6	279.68
L4540.125	24.0	125.0	221.9	0.7	2.2	2.6	310.31
L4540.150	24.0	150.0	246.9	0.7	2.2	2.6	340.93
L4540.175	24.0	175.0	271.9	0.7	2.2	2.6	371.56
L4540.200	24.0	200.0	296.9	0.7	2.2	2.6	402.18
L4540.225	24.0	225.0	321.9	0.7	2.2	2.6	432.81
L4540.250	24.0	250.0	346.9	0.7	2.2	2.6	463.43
L4540.275	24.0	275.0	371.9	0.7	2.2	2.6	494.06
L4540.300	24.0	300.0	396.9	0.7	2.2	2.6	524.68



**L4542**



**Material**

Carbon/graphite piston. Stainless Steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

**Technical Notes**

Ultra low friction.  
Corrosion resistant, no need for lubrication.

Operating temp range: -55°C to +150°C.  
For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation.  
Piston area = 452.5mm<sup>2</sup>.  
Force output at max pressure on rear side = 316.6N.  
Force output at max pressure on rod side = 294.5N.  
Piston friction as % of load (without side

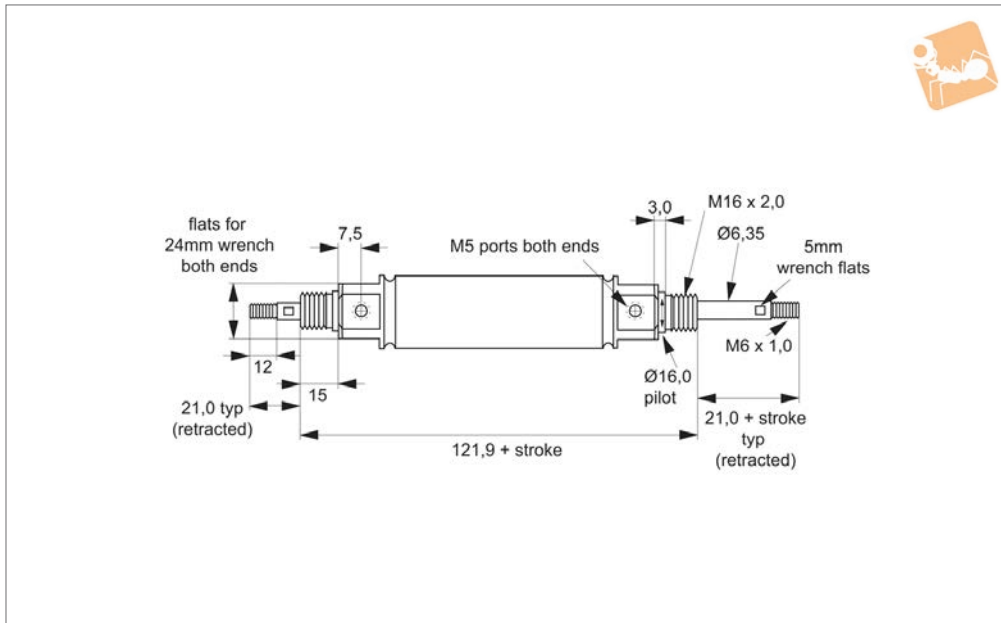
load) = 1% - 2%.  
Min pressure differential required for actuation = <0.0015 MPa.  
Force factor rear side = 452.5N.  
Force factor rod side = 420.8N.  
(factor x pressure (MPa) = force output (N)).  
\*max leak measured at pressure of 0.34 MPa.

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/min	Weight g
L4542.012	24.0	12.5	87.1	0.7	2.2	2.6	172.49
L4542.025	24.0	25.0	99.6	0.7	2.2	2.6	187.81
L4542.037	24.0	37.5	112.1	0.7	2.2	2.6	203.12
L4542.050	24.0	50.0	124.6	0.7	2.2	2.6	218.43
L4542.075	24.0	75.0	149.6	0.7	2.2	2.6	249.06
L4542.100	24.0	100.0	174.6	0.7	2.2	2.6	279.68
L4542.125	24.0	125.0	199.6	0.7	2.2	2.6	310.31
L4542.150	24.0	150.0	224.6	0.7	2.2	2.6	340.93
L4542.175	24.0	175.0	249.6	0.7	2.2	2.6	371.56
L4542.200	24.0	200.0	274.6	0.7	2.2	2.6	402.18
L4542.225	24.0	225.0	299.6	0.7	2.2	2.6	432.81
L4542.250	24.0	250.0	324.6	0.7	2.2	2.6	463.43
L4542.275	24.0	275.0	349.6	0.7	2.2	2.6	494.06
L4542.300	24.0	300.0	374.6	0.7	2.2	2.6	524.68



# Anti-Stiction Air Cylinder - 24mm double rod end

Cylinders



**L4544**

CYLINDERS

### Material

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless Steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

### Technical Notes

Ultra low friction.  
Corrosion resistant, no need for lubrication.

Operating temp range: -55°C to +150°C.  
For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation.  
Piston area = 452.5mm<sup>2</sup>.  
Force output at max pressure on rear side = 316.6N.  
Force output at max pressure on rod side = 294.5N.  
Piston friction as % of load (without side

load) = 1% - 2%.  
Min pressure differential required for actuation = <0.0015 MPa.  
Force factor rear side = 452.5N.  
Force factor rod side = 420.8N.  
(factor x pressure (MPa) = force output (N)).  
\*max leak measured at pressure of 0.34 MPa.

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/min	Weight g
L4544.012	24.0	12.5	134.4	0.7	2.2	2.6	223.4
L4544.025	24.0	25.0	146.9	0.7	2.2	2.6	241.9
L4544.037	24.0	37.5	159.4	0.7	2.2	2.6	260.4
L4544.050	24.0	50.0	171.9	0.7	2.2	2.6	278.9
L4544.075	24.0	75.0	196.9	0.7	2.2	2.6	315.9
L4544.100	24.0	100.0	221.9	0.7	2.2	2.6	352.9
L4544.125	24.0	125.0	246.9	0.7	2.2	2.6	389.9
L4544.150	24.0	150.0	271.9	0.7	2.2	2.6	426.9
L4544.175	24.0	175.0	296.9	0.7	2.2	2.6	463.9
L4544.200	24.0	200.0	321.9	0.7	2.2	2.6	500.9
L4544.225	24.0	225.0	346.9	0.7	2.2	2.6	537.9
L4544.250	24.0	250.0	371.9	0.7	2.2	2.6	574.9
L4544.275	24.0	275.0	396.9	0.7	2.2	2.6	611.9

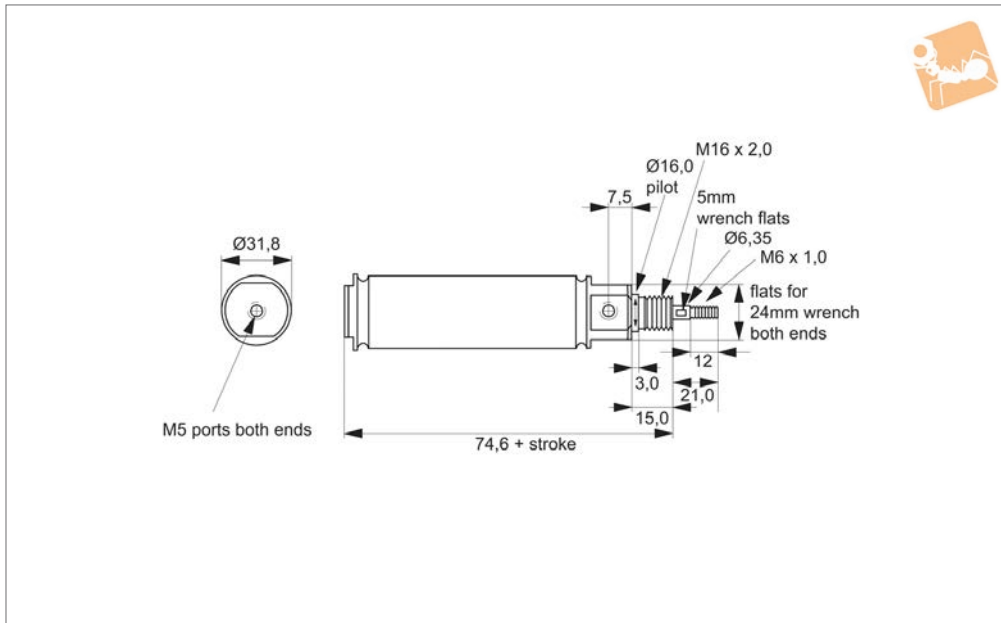






# Anti-Stiction Air Cylinder - 24mm

front stud mount - air extend spring return



**L4548**

CYLINDERS

### Material

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

### Technical Notes

Ultra low friction.  
Corrosion resistant, no need for lubrication.

Operating temp range: -55°C to +150°C.  
For applications operating below -20°C please add -ET to part number. Suitable for vacuum actuation.  
Piston area = 452.5mm<sup>2</sup>.  
Force output at max pressure on rear side = 316.6N.  
Force output at max pressure on rod side = 294.5N.  
Piston friction as % of load (without side

load) = 1% - 2%.  
Min pressure differential required for actuation = <0.0015 MPa.  
Force factor rear side = 452.5N.  
Force factor rod side = 420.8N.  
(factor x pressure (MPa) = force output (N)).  
\* max leak measured at pressure of 0.34 MPa.

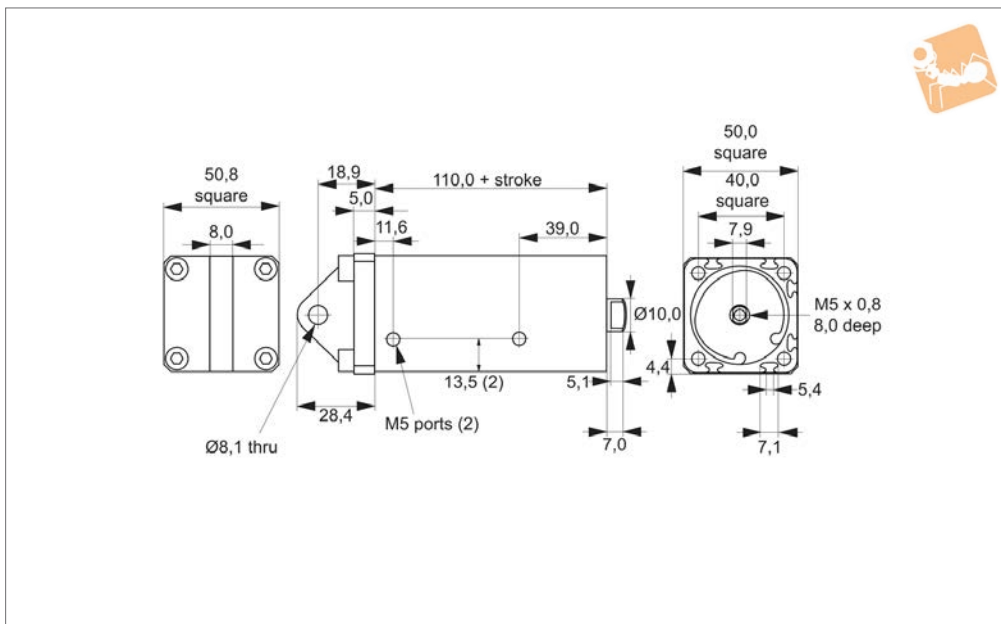
Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston SL/min max.	Leak rate by rod SL/mm max.	Reset spring force rod extended N	Reset spring force rod retracted N	Weight g
L4548.012	24,0	12,5	87,1	0,7	2,2	2,6	1,44	1,34	172,49
L4548.025	24,0	25,0	99,6	0,7	2,2	2,6	1,44	1,26	187,81
L4548.037	24,0	37,5	112,1	0,7	2,2	2,6	1,44	1,17	203,12
L4548.050	24,0	50,0	124,6	0,7	2,2	2,6	1,44	1,09	218,43



CYLINDERS



**L4556**



**Material**

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

**Technical Notes**

Ultra low friction.  
Corrosion resistant, no need for lubrication.

Operating temp range: -55°C to +150°C.

For applications operating below -20°C please add -ET to part number. NOT suitable for vacuum actuation.

Piston area = 830mm<sup>2</sup>.

Force output at max pressure on rear side = 581N.

Force output at max pressure on rod side = 526N.

Piston friction as % of load (without side

load) = 1% - 2%.

Min pressure differential required for actuation = <math>\leq 0.0035 \text{ MPa}</math>.

Force factor rear side = 830N.

Force factor rod side = 751N.

(factor x pressure (MPa) = force output (N)).

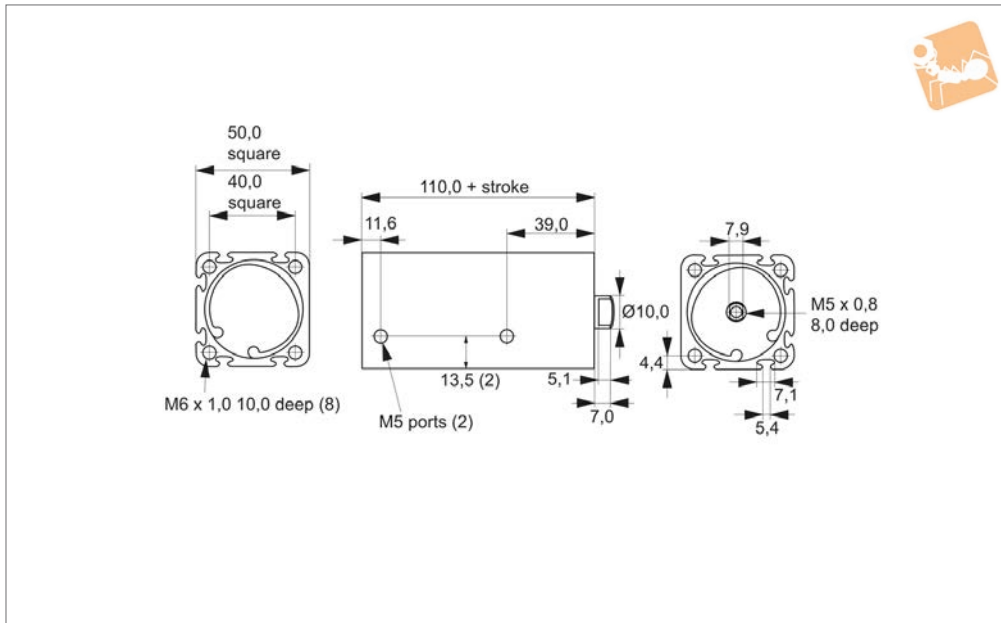
\* max leak measured at pressure of 0.34 MPa./symbol

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/min	Weight g
L4556.012	32.5	12.5	122.5	0.7	2.2	2.0	661.75
L4556.025	32.5	25.0	135	0.7	2.2	2.0	707.50
L4556.050	32.5	50.0	160	0.7	2.2	2.0	799.00
L4556.075	32.5	75.0	185	0.7	2.2	2.0	890.50
L4556.100	32.5	100.0	210	0.7	2.2	2.0	982.00



# Anti-Stiction Air Cylinder - 32mm front/rear mount

Cylinders



**L4558**

CYLINDERS

### Material

Carbon/graphite piston. Stainless steel rod (AISI 303). Stainless steel outer tube (AISI 304). Nickel plated aluminium cylinder heads and piston/rod coupling. Graphite filled bronze pivot bushing.

### Technical Notes

Ultra low friction.  
Corrosion resistant, no need for lubrication.

Operating temp range: -55°C to +150°C.

For applications operating below -20°C please add -ET to part number. NOT suitable for vacuum actuation.

Piston area = 830mm<sup>2</sup>.

Force output at max pressure on rear side = 581N.

Force output at max pressure on rod side = 526N.

Piston friction as % of load (without side

load) = 1% - 2%.

Min pressure differential required for actuation = <0.0035 MPa.

Force factor rear side = 830N.

Force factor rod side = 751N.

(factor x pressure (MPa) = force output (N)).

\*max leak measured at pressure of 0.34 MPa.

Order No.	Bore dia.	Stroke	Length	Pressure MPa max.	Leak rate by piston max. SL/min	Leak rate by rod max. SL/min	Weight g
L4558.012	32.5	12.5	122.5	0.7	2.2	2.0	661.75
L4558.025	32.5	25.0	135	0.7	2.2	2.0	707.50
L4558.050	32.5	50.0	160	0.7	2.2	2.0	799.00
L4558.075	32.5	75.0	185	0.7	2.2	2.0	890.50
L4558.100	32.5	100.0	210	0.7	2.2	2.0	982.00

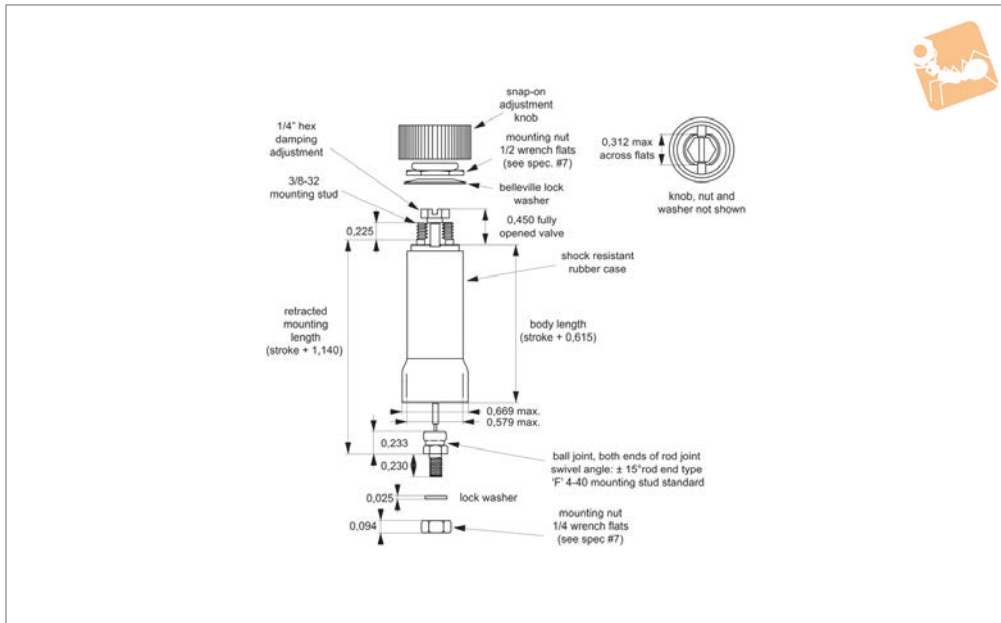




# Push/Pull Dashpot

0.366" bore

## Cylinders



**L4572**

CYLINDERS

**Material**

- Graphite carbon piston.
- Annealed borosilicate glass cylinder.
- Precision fire-polished bore.
- Stainless steel piston rod (AISI 304)
- Shock resistant rubber case.

**Technical Notes**

- Damping coefficient = 0-0,44 N/(mm/s).
- Friction coefficient = 0.2.
- Force without side load: <1g.
- Operating temperature range: -55°C to

150°C.

\*If operating temperature is above +70°C, please advise at time of ordering.

**Important Notes**

- Mounting data:
- Mounting hole:
  - Rectangular = 0.312 x 0.375 (8mm x 10mm)
  - Round = 0.375" (10mm)
- Suggested mounting bracket thickness = 0.06 - 0.125 (1.52mm - 3.18mm)

Mounting nut torque:

- Head = 4-8 in-lb (0.45 - 0.90 Nm)
- Rod end = 2-5 in-lb (0.23-0.56 Nm)

Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.38mm).

Level of damping is adjustable by hand. If you know the level of damping required we can pre-set this in the factory.

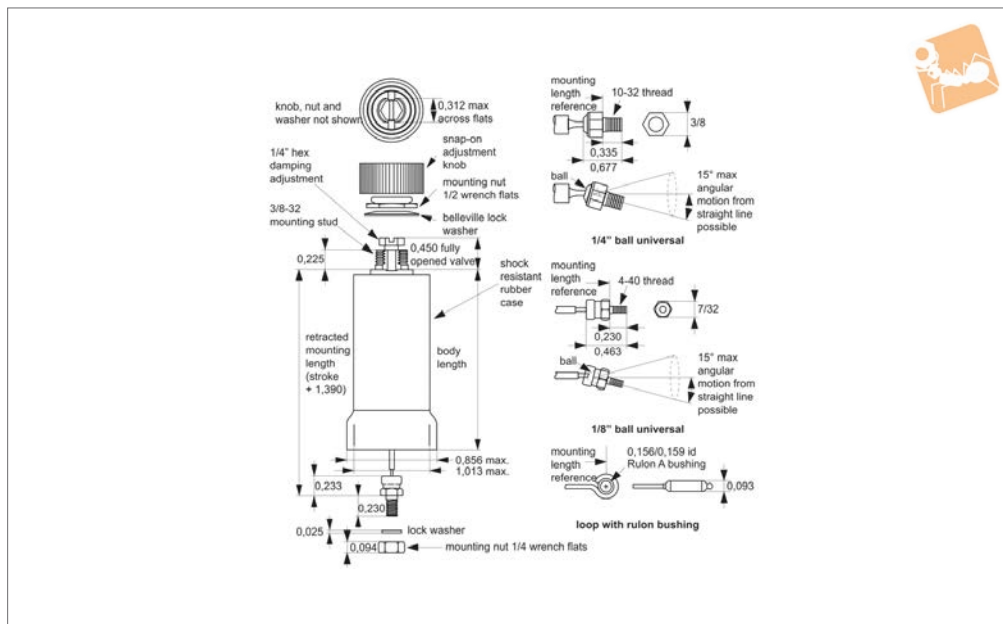
Order No.	Stroke	Damping direction	Rod end linkage	Bore dia.	Pull damping force N max.	Push damping force N max.	Body length
L4572.A0500-TW	0,5"	Two-way	1/8" Ball	0,366"	6.23	4.45	1,115"
L4572.A1000-TW	1,0"	Two-way	1/8" Ball	0,366"	6.23	4.45	1,615"
L4572.A1500-TW	1,5"	Two-way	1/8" Ball	0,366"	6.23	4.45	2,115"
L4572.A2000-TW	2,0"	Two-way	1/8" Ball	0,366"	6.23	4.45	2,615"
L4572.B0500-TW	0,5"	Two-way	Loop	0,366"	6.23	4.45	1,115"
L4572.B1000-TW	1,0"	Two-way	Loop	0,366"	6.23	4.45	1,615"
L4572.B1500-TW	1,5"	Two-way	Loop	0,366"	6.23	4.45	2,115"
L4572.B2000-TW	2,0"	Two-way	Loop	0,366"	6.23	4.45	2,615"
L4572.A0500-PL	0,5"	Pull	1/8" Ball	0,366"	6.23	4.45	1,115"
L4572.A1000-PL	1,0"	Pull	1/8" Ball	0,366"	6.23	4.45	1,615"
L4572.A1500-PL	1,5"	Pull	1/8" Ball	0,366"	6.23	4.45	2,115"
L4572.A2000-PL	2,0"	Pull	1/8" Ball	0,366"	6.23	4.45	2,615"
L4572.B0500-PL	0,5"	Pull	Loop	0,366"	6.23	4.45	1,115"
L4572.B1000-PL	1,0"	Pull	Loop	0,366"	6.23	4.45	1,615"
L4572.B1500-PL	1,5"	Pull	Loop	0,366"	6.23	4.45	2,115"
L4572.B2000-PL	2,0"	Pull	Loop	0,366"	6.23	4.45	2,615"
L4572.A0500-PS	0,5"	Push	1/8" Ball	0,366"	6.23	4.45	1,115"
L4572.A1000-PS	1,0"	Push	1/8" Ball	0,366"	6.23	4.45	1,615"
L4572.A1500-PS	1,5"	Push	1/8" Ball	0,366"	6.23	4.45	2,115"
L4572.A2000-PS	2,0"	Push	1/8" Ball	0,366"	6.23	4.45	2,615"
L4572.B0500-PS	0,5"	Push	Loop	0,366"	6.23	4.45	1,115"
L4572.B1000-PS	1,0"	Push	Loop	0,366"	6.23	4.45	1,615"
L4572.B1500-PS	1,5"	Push	Loop	0,366"	6.23	4.45	2,115"
L4572.B2000-PS	2,0"	Push	Loop	0,366"	6.23	4.45	2,615"



CYLINDERS



**L4574**



**Material**

Graphite carbon piston.  
 Annealed borosilicate glass cylinder.  
 Precision fire-polished bore.  
 Stainless steel piston rod (AISI 304) or  
 Aluminium 2024-T4

**Technical Notes**

Damping coefficient = 0-1,75 N/(mm/s).  
 Friction coefficient = 0.2.  
 Force without side load: <1g.  
 Operating temperature range: -55°C to  
 150°C.

\*If operating temperature is above +70°C,  
 please advise at time of ordering.

**Important Notes**

Mounting data:  
 Mounting hole:  
 Rectangular = 0.312 x 0.375 (8mm x  
 10mm)  
 Round = 0.375" (10mm)  
 Suggested mounting bracket thickness =  
 0.06 - 0.093 (1.52mm - 2.36mm)  
 Mounting nut torque:  
 Head = 4-8 in-lb (0.45 - 0.90 Nm)

Rod end = 2-5 in-lb (0.23-0.56 Nm)

Full stroke is obtained with customer held  
 mounting tolerance of ±0.015" (0.38mm).

1/4" ball joint linkage option only  
 available with aluminium rod.

Level of damping is adjustable by hand. If  
 you know the level of damping required we  
 can pre-set this in the factory.

Order No.	Stroke	Damping direction	Rod end linkage	Bore dia.	Piston rod	Pull damping force	Push damping force	Body length
						N max.	N max.	
L4574.A0500-TW	0,5"	Two-way	1/8" Ball	0,627"	Stainless	18	13	1,255"
L4574.A1000-TW	1,0"	Two-way	1/8" Ball	0,627"	Stainless	18	13	1,755"
L4574.A1500-TW	1,5"	Two-way	1/8" Ball	0,627"	Stainless	18	13	2,255"
L4574.A2000-TW	2,0"	Two-way	1/8" Ball	0,627"	Stainless	18	13	2,755"
L4574.A3000-TW	3,0"	Two-way	1/8" Ball	0,627"	Stainless	18	13	3,755"
L4574.B0500-TW	0,5"	Two-way	Loop	0,627"	Stainless	18	13	1,255"
L4574.B1000-TW	1,0"	Two-way	Loop	0,627"	Stainless	18	13	1,755"
L4574.B1500-TW	1,5"	Two-way	Loop	0,627"	Stainless	18	13	2,255"
L4574.B2000-TW	2,0"	Two-way	Loop	0,627"	Stainless	18	13	2,755"
L4574.B3000-TW	3,0"	Two-way	Loop	0,627"	Stainless	18	13	3,755"
L4574.A0500-PL	0,5"	Pull	1/8" Ball	0,627"	Stainless	18	13	1,255"
L4574.A1000-PL	1,0"	Pull	1/8" Ball	0,627"	Stainless	18	13	1,755"
L4574.A1500-PL	1,5"	Pull	1/8" Ball	0,627"	Stainless	18	13	2,255"
L4574.A2000-PL	2,0"	Pull	1/8" Ball	0,627"	Stainless	18	13	2,755"
L4574.A3000-PL	3,0"	Pull	1/8" Ball	0,627"	Stainless	18	13	3,755"
L4574.E0500-PL	0,5"	Pull	1/4" Ball	0,627"	Aluminium	18	13	1,260"
L4574.E1000-PL	1,0"	Pull	1/4" Ball	0,627"	Aluminium	18	13	1,760"
L4574.E1500-PL	1,5"	Pull	1/4" Ball	0,627"	Aluminium	18	13	2,260"
L4574.E2000-PL	2,0"	Pull	1/4" Ball	0,627"	Aluminium	18	13	2,760"
L4574.E3000-PL	3,0"	Pull	1/4" Ball	0,627"	Aluminium	18	13	3,760"
L4574.B0500-PL	0,5"	Pull	Loop	0,627"	Stainless	18	13	1,255"
L4574.B1000-PL	1,0"	Pull	Loop	0,627"	Stainless	18	13	1,755"
L4574.B1500-PL	1,5"	Pull	Loop	0,627"	Stainless	18	13	2,255"





# Push/Pull Dashpot

0.627" bore

## Cylinders

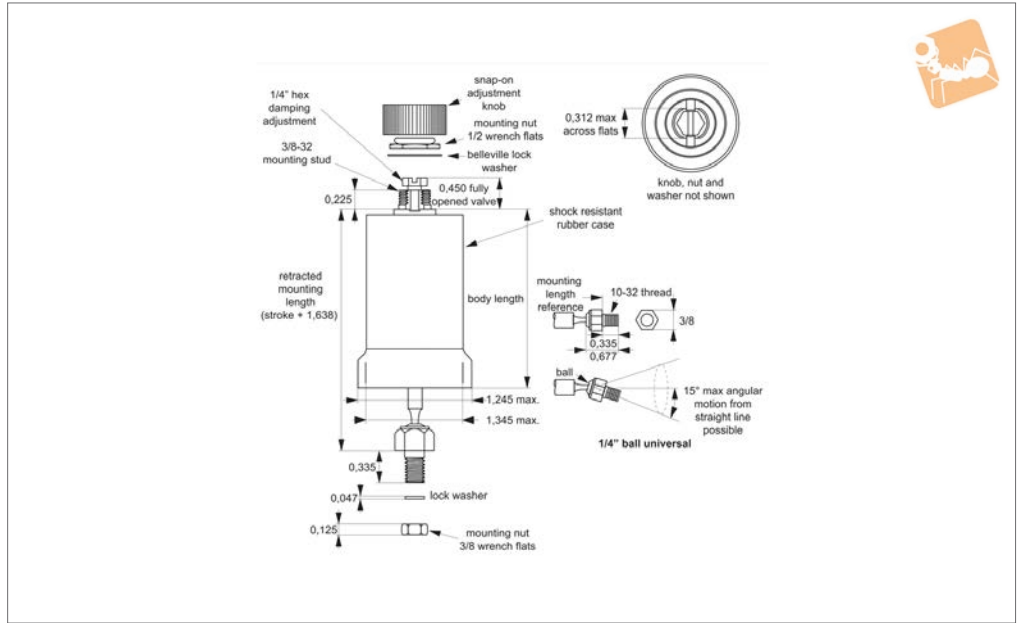


Order No.	Stroke	Damping direction	Rod end linkage	Bore dia.	Piston rod	Pull damping force	Push damping force	Body length
						N max.	N max.	
L4574.B2000-PL	2,0"	Pull	Loop	0,627"	Stainless	18	13	2,755"
L4574.B3000-PL	3,0"	Pull	Loop	0,627"	Stainless	18	13	3,755"
L4574.A0500-PS	0,5"	Push	1/8" Ball	0,627"	Stainless	18	13	1,255"
L4574.A1000-PS	1,0"	Push	1/8" Ball	0,627"	Stainless	18	13	1,755"
L4574.A1500-PS	1,5"	Push	1/8" Ball	0,627"	Stainless	18	13	2,255"
L4574.A2000-PS	2,0"	Push	1/8" Ball	0,627"	Stainless	18	13	2,755"
L4574.A3000-PS	3,0"	Push	1/8" Ball	0,627"	Stainless	18	13	3,755"
L4574.E0500-PS	0,5"	Push	1/4" Ball	0,627"	Aluminium	18	13	1,281"
L4574.E1000-PS	1,0"	Push	1/4" Ball	0,627"	Aluminium	18	13	1,781"
L4574.E1500-PS	1,5"	Push	1/4" Ball	0,627"	Aluminium	18	13	2,281"
L4574.E2000-PS	2,0"	Push	1/4" Ball	0,627"	Aluminium	18	13	2,781"
L4574.E3000-PS	3,0"	Push	1/4" Ball	0,627"	Aluminium	18	13	3,781"
L4574.B0500-PS	0,5"	Push	Loop	0,627"	Stainless	18	13	1,255"
L4574.B1000-PS	1,0"	Push	Loop	0,627"	Stainless	18	13	1,755"
L4574.B1500-PS	1,5"	Push	Loop	0,627"	Stainless	18	13	2,255"
L4574.B2000-PS	2,0"	Push	Loop	0,627"	Stainless	18	13	2,755"
L4574.B3000-PS	3,0"	Push	Loop	0,627"	Stainless	18	13	3,755"
L4574.E0500-TW	0,5"	Two-way	1/4" Ball	0,627"	Aluminium	18	13	1,300"
L4574.E1000-TW	1,0"	Two-way	1/4" Ball	0,627"	Aluminium	18	13	1,800"
L4574.E1500-TW	1,5"	Two-way	1/4" Ball	0,627"	Aluminium	18	13	2,300"
L4574.E2000-TW	2,0"	Two-way	1/4" Ball	0,627"	Aluminium	18	13	2,800"
L4574.E3000-TW	3,0"	Two-way	1/4" Ball	0,627"	Aluminium	18	13	3,800"

CYLINDERS



L4576



CYLINDERS

**Material**

Graphite carbon piston.  
Annealed borosilicate glass cylinder.  
Precision fire-polished bore.  
Aluminium 2024-T4 Piston rod.

**Technical Notes**

Damping coefficient = 0-5,25 N/(mm/s).  
Friction coefficient = 0.2.  
Force without side load: <1g.  
Operating temperature range: -55°C to 150°C.  
\*If operating temperature is above +70°C,

please advise at time of ordering.

**Important Notes**

Mounting data:  
Mounting hole:  
Rectangular = 0.312 x 0.375 (8mm x 10mm)  
Round = 0.375" (10mm)  
Suggested mounting bracket thickness = 0.06 - 0.093 (1.52mm - 2.36mm)  
Mounting nut torque:  
Head = 4-8 in-lb (0.45 - 0.90 Nm)  
Rod end = 5-15 in-lb (0.56-1.70 Nm)

Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.38mm).

B" ball joint linkage option only available with aluminium rod.

Level of damping is adjustable by hand. If you know the level of damping required we can pre-set this in the factory.

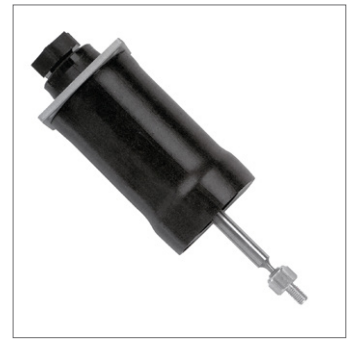
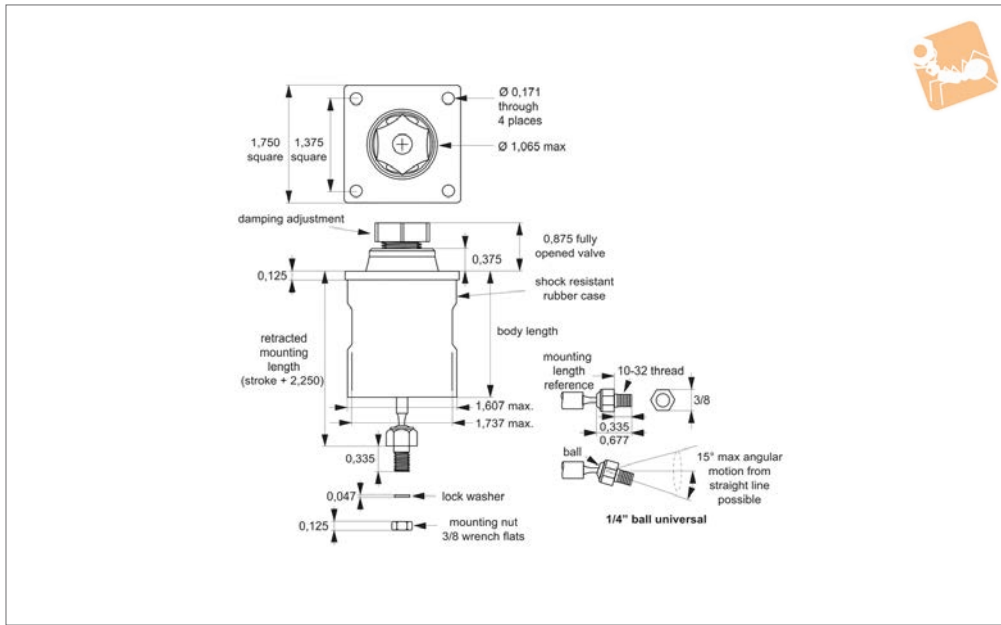
Order No.	Stroke	Damping direction	Rod end linkage	Bore dia.	Pull damping force N max.	Push damping force N max.	Body length
L4576.0500-TW	0,5"	Two-way	1/4" Ball	0,945"	40	31.1	1,296"
L4576.1000-TW	1,0"	Two-way	1/4" Ball	0,945"	40	31.1	1,796"
L4576.1500-TW	1,5"	Two-way	1/4" Ball	0,945"	40	31.1	2,296"
L4576.2000-TW	2,0"	Two-way	1/4" Ball	0,945"	40	31.1	2,796"
L4576.0500-PL	0,5"	Pull	1/4" Ball	0,945"	40	31.1	1,296"
L4576.1000-PL	1,0"	Pull	1/4" Ball	0,945"	40	31.1	1,796"
L4576.1500-PL	1,5"	Pull	1/4" Ball	0,945"	40	31.1	2,296"
L4576.2000-PL	2,0"	Pull	1/4" Ball	0,945"	40	31.1	2,796"
L4576.0500-PS	0,5"	Push	1/4" Ball	0,945"	40	31.1	1,277"
L4576.1000-PS	1,0"	Push	1/4" Ball	0,945"	40	31.1	1,777"
L4576.1500-PS	1,5"	Push	1/4" Ball	0,945"	40	31.1	2,277"
L4576.2000-PS	2,0"	Push	1/4" Ball	0,945"	40	31.1	2,777"



# Push/Pull Dashpot

1,281" bore

## Cylinders



**L4578**

CYLINDERS

### Material

Graphite carbon piston.  
 Annealed borosilicate glass cylinder.  
 Precision fire-polished bore.  
 Stainless steel piston rod (AISI 304).

Force without side load: <4g.  
 Operating temperature range: -55°C to 125°C.  
 \*If operating temperature is above +70°C, please advise at time of ordering.

Rod end = 5-15 in-lb (0.56-1.7 Nm)

Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.38mm).

### Technical Notes

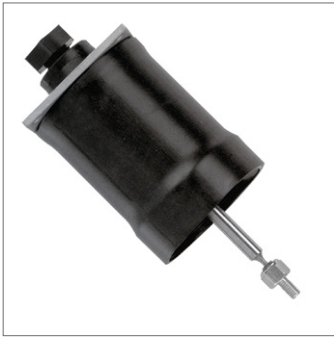
Damping coefficient = 0-7, N N/(mm/s).  
 Friction coefficient = 0.2.

### Important Notes

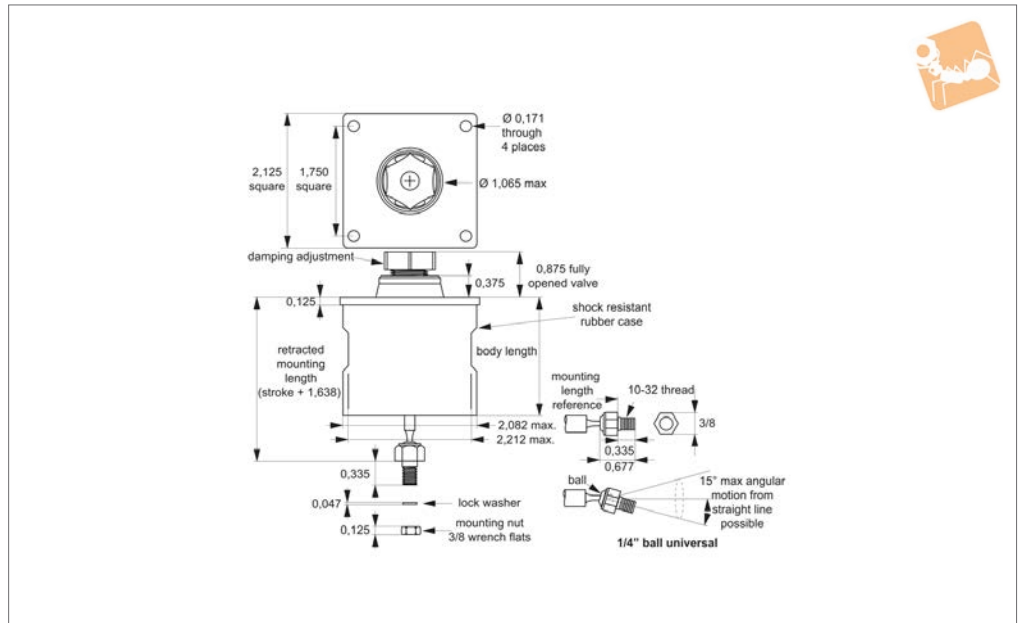
Mounting data:  
 Mounting nut torque:

Level of damping is adjustable by hand. If you know the level of damping required we can pre-set this in the factory.

Order No.	Stroke	Damping direction	Rod end linkage	Bore dia.	Pull damping force N max.	Push damping force N max.	Body length
L4578.0500-TW	0,5"	Two-way	1/4" Ball	1,281"	75.62	57.83	1,880"
L4578.1000-TW	1,0"	Two-way	1/4" Ball	1,281"	75.62	57.83	2,380"
L4578.1500-TW	1,5"	Two-way	1/4" Ball	1,281"	75.62	57.83	2,880"
L4578.2000-TW	2,0"	Two-way	1/4" Ball	1,281"	75.62	57.83	3,380"
L4578.3000-TW	3,0"	Two-way	1/4" Ball	1,281"	75.62	57.83	4,380"
L4578.0500-PL	0,5"	Pull	1/4" Ball	1,281"	75.62	57.83	1,880"
L4578.1000-PL	1,0"	Pull	1/4" Ball	1,281"	75.62	57.83	2,380"
L4578.1500-PL	1,5"	Pull	1/4" Ball	1,281"	75.62	57.83	2,880"
L4578.2000-PL	2,0"	Pull	1/4" Ball	1,281"	75.62	57.83	3,380"
L4578.3000-PL	3,0"	Pull	1/4" Ball	1,281"	75.62	57.83	4,380"
L4578.0500-PS	0,5"	Push	1/4" Ball	1,281"	75.62	57.83	1,947"
L4578.1000-PS	1,0"	Push	1/4" Ball	1,281"	75.62	57.83	2,447"
L4578.1500-PS	1,5"	Push	1/4" Ball	1,281"	75.62	57.83	2,947"
L4578.2000-PS	2,0"	Push	1/4" Ball	1,281"	75.62	57.83	3,447"
L4578.3000-PS	3,0"	Push	1/4" Ball	1,281"	75.62	57.83	4,447"



L4580



**Material**

Graphite carbon piston.  
Annealed borosilicate glass cylinder.  
Precision fire-polished bore.  
Stainless steel piston rod (AISI 304).

**Technical Notes**

Damping coefficient = 0-7,0 N/(mm/s).  
Friction coefficient = 0.2.

Force without side load: <8g.

Operating temperature range: -55°C to 125°C.

\*If operating temperature is above +70°C, please advise at time of ordering.

**Important Notes**

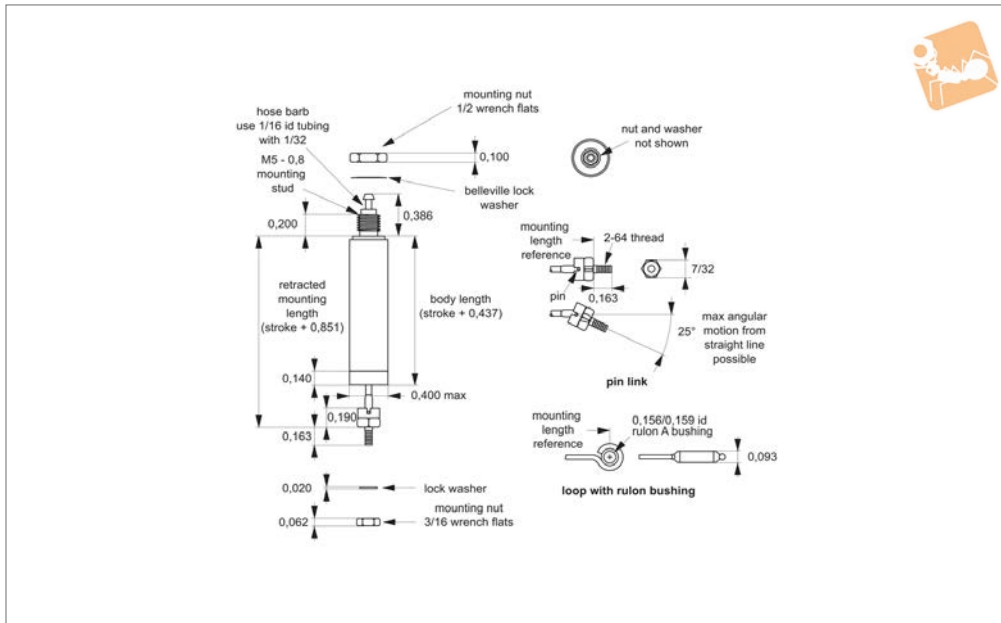
Mounting data:  
Mounting nut torque:

Rod end = 5-15 in-lb (0.56-1.7 Nm)

Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.38mm).

Level of damping is adjustable by hand. If you know the level of damping required we can pre-set this in the factory.

Order No.	Stroke	Damping direction	Rod end linkage	Bore dia.	Pull damping force N max.	Push damping force N max.	Body length
L4580.0500-TW	0,5"	Two-way	1/4" Ball	1,750"	133.45	106.76	1,852"
L4580.1000-TW	1,0"	Two-way	1/4" Ball	1,750"	133.45	106.76	2,352"
L4580.2000-TW	2,0"	Two-way	1/4" Ball	1,750"	133.45	106.76	3,352"
L4580.3000-TW	3,0"	Two-way	1/4" Ball	1,750"	133.45	106.76	4,352"
L4580.0500-PL	0,5"	Pull	1/4" Ball	1,750"	133.45	106.76	1,852"
L4580.1000-PL	1,0"	Pull	1/4" Ball	1,750"	133.45	106.76	2,352"
L4580.2000-PL	2,0"	Pull	1/4" Ball	1,750"	133.45	106.76	3,352"
L4580.3000-PL	3,0"	Pull	1/4" Ball	1,750"	133.45	106.76	4,352"
L4580.0500-PS	0,5"	Push	1/4" Ball	1,750"	133.45	106.76	1,987"
L4580.1000-PS	1,0"	Push	1/4" Ball	1,750"	133.45	106.76	2,487"
L4580.2000-PS	2,0"	Push	1/4" Ball	1,750"	133.45	106.76	3,487"
L4580.3000-PS	3,0"	Push	1/4" Ball	1,750"	133.45	106.76	4,487"



L4590

CYLINDERS

**Material**

Graphite carbon piston.  
Annealed borosilicate glass cylinder.  
Precision fire-polished bore.  
Stainless steel piston rod (AISI 304).  
Shock resistant rubber case.

**Technical Notes**

Piston area = 0.038 in<sup>2</sup> (24.54mm<sup>2</sup>)  
Pressure range = full vacuum - 125 psi (0.86 MPa)  
Force factor:  
Piston area x pressure = output force.

Max force = 21.13N (at 0.86 MPa)  
Minimum pressure differential required for actuation = 0.05 psi (345 Pa)  
Friction coefficient = 0.2  
Force without side load typically 0.5% - 1.5% of load.  
Operating temperature range: -55°C to 150°C.  
If operating at temperatures about +70°C, please advise when placing order.

Mounting data:

Suggested mounting bracket thickness = 0.050" - 0.100" (1.27mm - 2.54mm).  
Mounting nut torque:  
Head = 2-4 in-lb (0.23-0.45 Nm).  
Rod end = 1-3 in-lb (0.11-0.34 Nm).

\*Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.038mm).

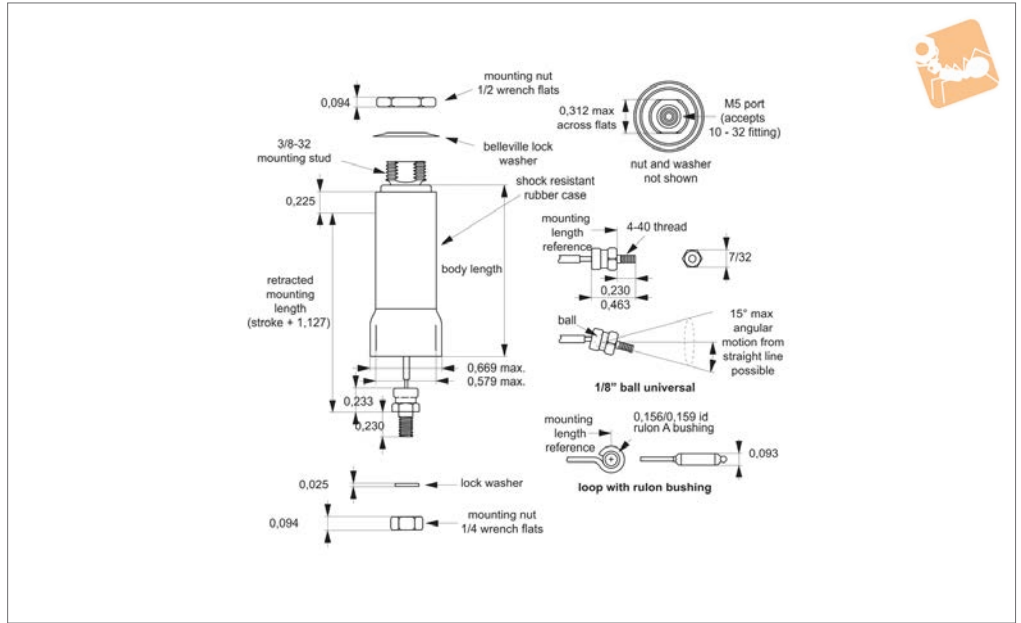
**Important Notes**

Please see technical pages for information on end linkages.

Order No.	Stroke	Rod end linkage	Bore dia.	Leak at 65psi max. SL/min	Leak at 125 psi max. SL/min	Body length
L4590.A0500	0,5"	Pin	0,22"	0.19	0.57	0,916"
L4590.A1000	1,0"	Pin	0,22"	0.19	0.57	1,416"
L4590.A1500	1,5"	Pin	0,22"	0.19	0.57	1,916"
L4590.A2000	2,0"	Pin	0,22"	0.19	0.57	2,416"
L4590.B0500	0,5"	Loop	0,22"	0.19	0.57	0,916"
L4590.B1000	1,0"	Loop	0,22"	0.19	0.57	1,416"
L4590.B1500	1,5"	Loop	0,22"	0.19	0.57	1,916"
L4590.B2000	2,0"	Loop	0,22"	0.19	0.57	2,416"



**L4592**



**Material**

Graphite carbon piston.  
Annealed borosilicate glass cylinder.  
Precision fire-polished bore.  
Stainless steel piston rod (AISI 304).  
Shock resistant rubber case.

**Technical Notes**

Piston area = 0.701 in<sup>2</sup> (452.25mm<sup>2</sup>)  
Pressure range = full vacuum - 100 psi (0.69 MPa)  
Force factor:  
Piston area x pressure = output force.

Max force = 46.83N (at 0.69 MPa)  
Minimum pressure differential required for actuation = 0.05 psi (345 Pa)  
Friction coefficient = 0.2  
Force without side load typically 0.5% - 1.5% of load.  
Operating temperature range: -55 °C to 150 °C.  
If operating at temperatures about +70 °C, please advise when placing order.

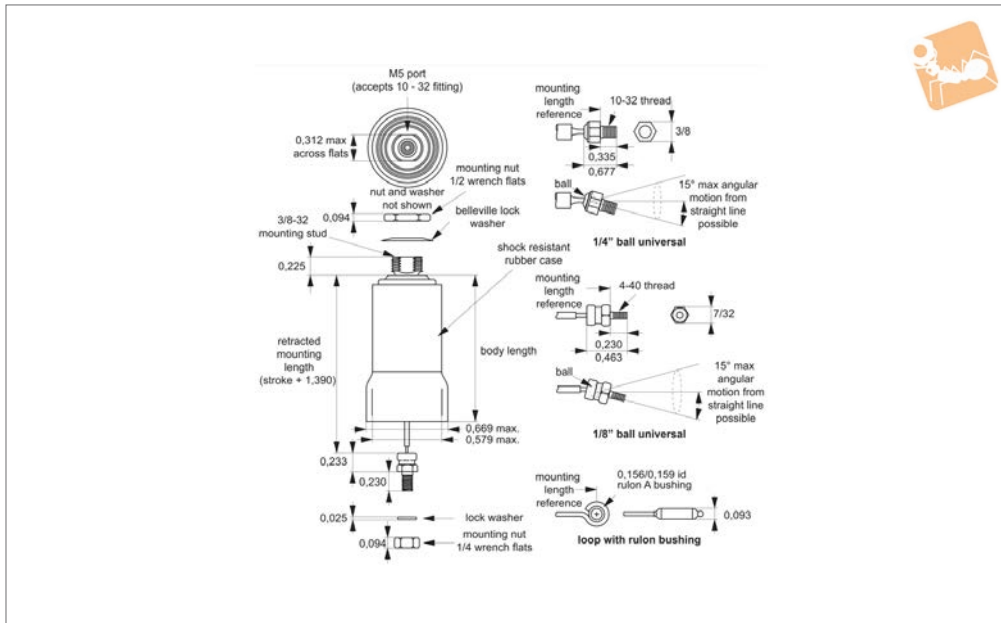
Mounting data:

Mounting hole:  
Round 0.375" (10mm)  
Suggested mounting bracket thickness = 0.060" - 0.125" (1.52mm - 3.18mm).  
Mounting nut torque:  
Head = 4-8 in-lb (0.45-0.90 Nm).  
Rod end = 2-5 in-lb (0.23-0.56 Nm).  
Fitting = 12 in-lb max

\* Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.038mm).

Order No.	Stroke	Rod end linkage	Bore dia.	Leak at 50 psi max. SL/min	Leak at 100 psi max. SL/min	Body length
L4592.A0500	0,5"	1/8" Ball	0,366"	0.36	1.17	1,092"
L4592.A1000	1,0"	1/8" Ball	0,366"	0.36	1.17	1,492"
L4592.A1500	1,5"	1/8" Ball	0,366"	0.36	1.17	2,092"
L4592.A2000	2,0"	1/8" Ball	0,366"	0.36	1.17	2,492"
L4592.A3000	3,0"	1/8" Ball	0,366"	0.36	1.17	3,492"
L4592.A4000	4,0"	1/8" Ball	0,366"	0.36	1.17	4,492"
L4592.B0500	0,5"	Loop	0,366"	0.36	1.17	1,092"
L4592.B1000	1,0"	Loop	0,366"	0.36	1.17	1,592"
L4592.B1500	1,5"	Loop	0,366"	0.36	1.17	2,092"
L4592.B2000	2,0"	Loop	0,366"	0.36	1.17	2,592"
L4592.B3000	3,0"	Loop	0,366"	0.36	1.17	3,592"
L4592.B4000	4,0"	Loop	0,366"	0.36	1.17	4,592"





L4594

CYLINDERS

**Material**

Graphite carbon piston.  
Annealed borosilicate glass cylinder.  
Precision fire-polished bore.  
Stainless steel piston rod (AISI 304) or Aluminium 2024-T4.  
Shock resistant rubber case.

**Technical Notes**

Piston area = 0.309 in<sup>2</sup> (199.20mm<sup>2</sup>)  
Pressure range = full vacuum - 100 psi (0.69 MPa)  
Force factor:  
Piston area x pressure = output force.  
Max force = 137.45N (at 0.69 MPa)

Minimum pressure differential required for actuation = 0.05 psi (345 Pa)  
Friction coefficient = 0.2  
Force without side load typically 0.5% - 1.5% of load.  
Operating temperature range: -55°C to 150°C.  
If operating at temperatures about +70°C, please advise when placing order.

Mounting data:  
Mounting hole:  
Rectangular: 0.312" x 0.375" (8mm x 10mm)

Round: 0.375" (10mm)  
Suggested mounting bracket thickness = 0.060" - 0.125" (1.52mm - 3.18mm).  
Mounting nut torque:  
Head = 4-8 in-lb (0.45-0.90Nm).  
Rod end = 2-5 in-lb (0.23-0.56 Nm).  
Fitting = 12 in-lb max.

\* Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.038mm).

**Important Notes**

Stainless steel piston rod not for use above 35 psi.

Order No.	Stroke	Rod end linkage	Piston type	Bore dia.	Leak at 50 psi max. SL/min	Leak at 100 psi max. SL/min	Body length
L4594.A0500	0,5"	1/8 Ball	Stainless	0,627"	-	-	1,255"
L4594.A1000	1,0"	1/8 Ball	Stainless	0,627"	-	-	1,755"
L4594.A1500	1,5"	1/8 Ball	Stainless	0,627"	-	-	2,255"
L4594.A2000	2,0"	1/8 Ball	Stainless	0,627"	-	-	2,755"
L4594.A3000	3,0"	1/8 Ball	Stainless	0,627"	-	-	3,755"
L4594.A4000	4,0"	1/8 Ball	Stainless	0,627"	-	-	4,755"
L4594.A5000	5,0"	1/8 Ball	Stainless	0,627"	-	-	5,755"
L4594.A6000	6,0"	1/8 Ball	Stainless	0,627"	-	-	6,755"
L4594.B0500	0,5"	Loop	Stainless	0,627"	-	-	1,255"
L4594.B1000	1,0"	Loop	Stainless	0,627"	-	-	1,755"
L4594.B1500	1,5"	Loop	Stainless	0,627"	-	-	2,255"
L4594.B2000	2,0"	Loop	Stainless	0,627"	-	-	2,755"
L4594.B3000	3,0"	Loop	Stainless	0,627"	-	-	3,755"
L4594.B4000	4,0"	Loop	Stainless	0,627"	-	-	4,755"
L4594.B5000	5,0"	Loop	Stainless	0,627"	-	-	5,755"
L4594.B6000	6,0"	Loop	Stainless	0,627"	-	-	6,755"
L4594.E0500	0,5"	1/4 Ball	Aluminium	0,627"	0.74	2.78	1,300"
L4594.E1000	1,0"	1/4 Ball	Aluminium	0,627"	0.74	2.78	1,800"
L4594.E1500	1,5"	1/4 Ball	Aluminium	0,627"	0.74	2.78	2,300"
L4594.E2000	2,0"	1/4 Ball	Aluminium	0,627"	0.74	2.78	2,800"
L4594.E3000	3,0"	1/4 Ball	Aluminium	0,627"	0.74	2.78	3,800"
L4594.E4000	4,0"	1/4 Ball	Aluminium	0,627"	0.74	2.78	4,800"





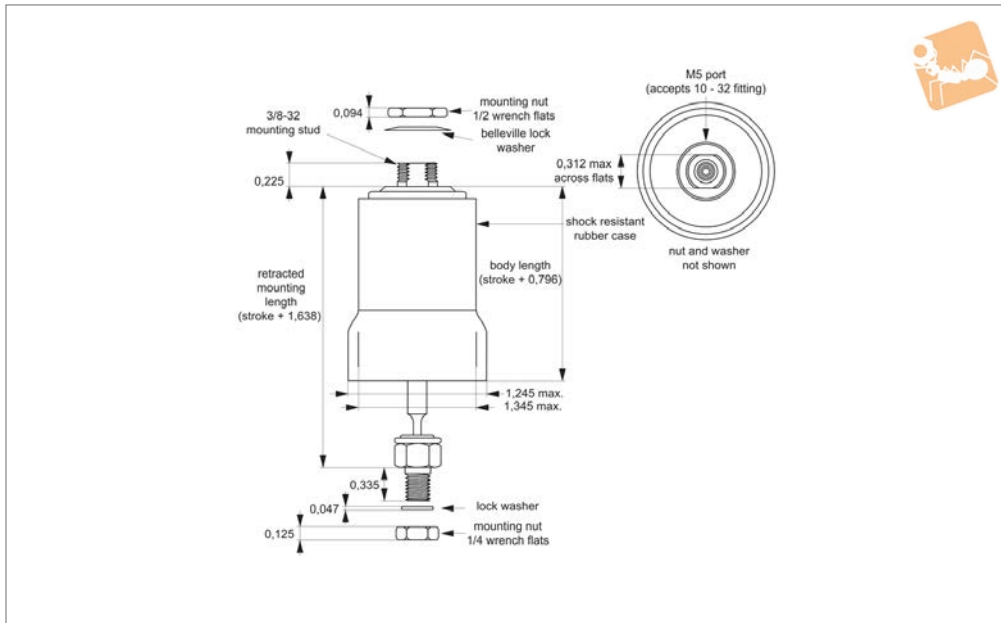
Order No.	Stroke	Rod end linkage	Piston type	Bore dia.	Leak at 50 psi max. SL/min	Leak at 100 psi max. SL/min	Body length
<b>L4594.E5000</b>	5,0"	1/4 Ball	Aluminium	0,627"	0.74	2.78	5,800"
<b>L4594.E6000</b>	6,0"	1/4 Ball	Aluminium	0,627"	0.74	2.78	6,800"



# Actuator

0,945" bore

# Cylinders



**L4596**

CYLINDERS

**Material**

- Graphite carbon piston.
- Annealed borosilicate glass cylinder.
- Precision fire-polished bore.
- Aluminium 2024-T4 piston rod.
- Shock resistant rubber case.

**Technical Notes**

- Piston area = 0.701 in<sup>2</sup> (452.25mm<sup>2</sup>)
- Pressure range = full vacuum - 100 psi (0.69 MPa)
- Force factor:
- Piston area x pressure = output force.
- Max force = 312.05N (at 0.69 MPa)

- Minimum pressure differential required for actuation = 0.05 psi (345 Pa)
- Friction coefficient = 0.2
- Force without side load typically 0.5% - 1.5% of load.
- Operating temperature range: -55°C to 150°C.
- If operating at temperatures about +70°C, please advise when placing order.

- Mounting data:
- Mounting hole:
- Rectangular: 0.312" x 0.375" (8mm x

- 10mm)
- Round: 0.375" (10mm).

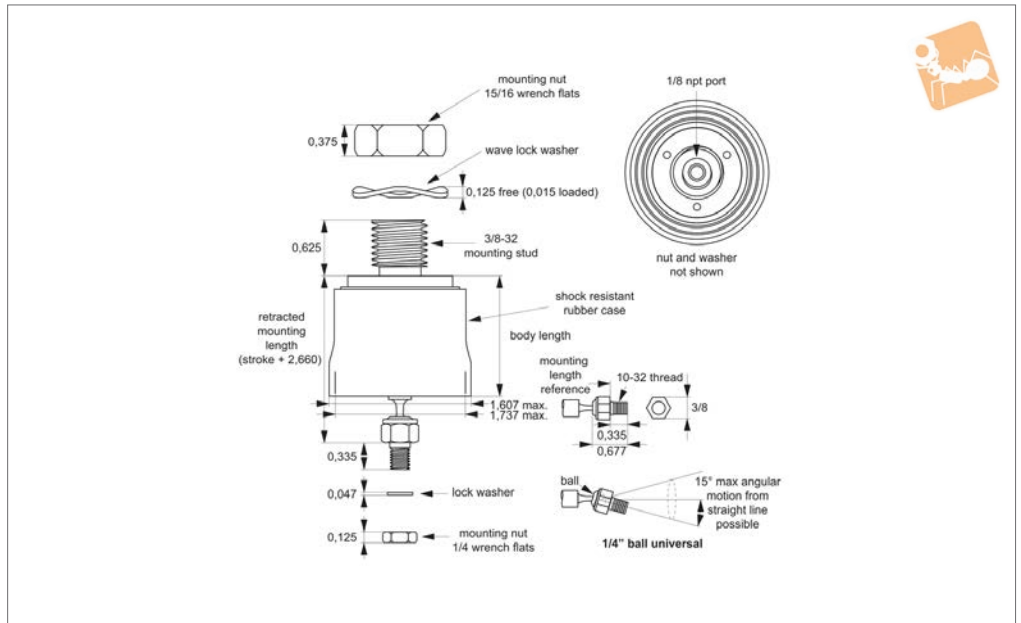
- Suggested mounting bracket thickness = 0.060" - 0.125" (1.52mm - 3.18mm).
- Mounting nut torque:
- Head = 4-8 in-lb (0.45-0.90 Nm).
- Rod end = 5-15 in-lb (0.56-1.70 Nm)
- Fitting = 12 in-lb max.

\*Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.038mm).

Order No.	Stroke	Rod end linkage	Bore dia.	Leak at 50 psi max. SL/min	Leak at 100 psi max. SL/min	Body length
L4596.0500	0,5"	1/4" Ball	0,945"	1.06	5.60	1,296"
L4596.1000	1,0"	1/4" Ball	0,945"	1.06	5.60	1,796"
L4596.2000	2,0"	1/4" Ball	0,945"	1.06	5.60	2,796"
L4596.3000	3,0"	1/4" Ball	0,945"	1.06	5.60	3,796"
L4596.4000	4,0"	1/4" Ball	0,945"	1.06	5.60	4,796"
L4596.5000	5,0"	1/4" Ball	0,945"	1.06	5.60	5,796"
L4596.6000	6,0"	1/4" Ball	0,945"	1.06	5.60	6,796"



L4598



**Material**

Graphite carbon piston.  
Annealed borosilicate glass cylinder.  
Precision fire-polished bore.  
Stainless steel piston rod (AISI 304).  
Shock resistant rubber case.

**Technical Notes**

Piston area = 1.288 in<sup>2</sup> (830.97mm<sup>2</sup>)  
Pressure range = full vacuum - 100 psi (0.69 MPa)  
Force factor:  
Piston area x pressure = output force.

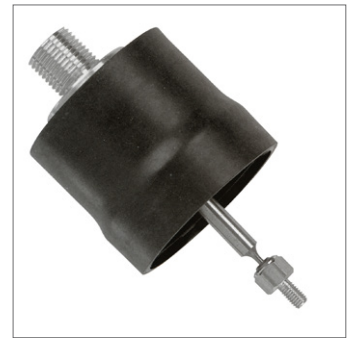
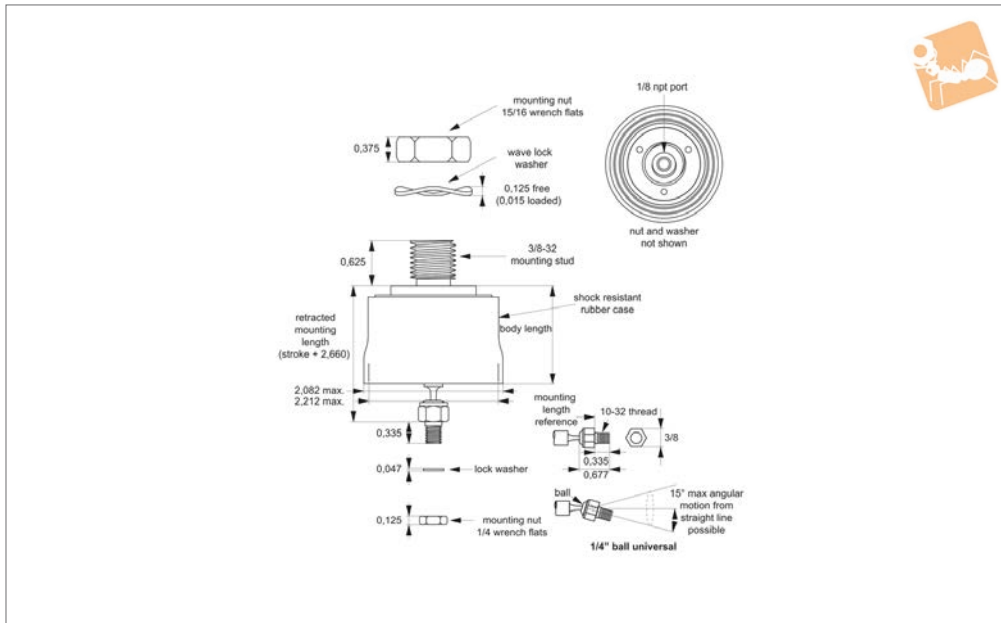
Max force = 573.37N (at 0.69 MPa)  
Minimum pressure differential required for actuation = 0.05 psi (345 Pa)  
Friction coefficient = 0.2  
Force without side load typically 0.5% - 1.5% of load.  
Operating temperature range: -55°C to 150°C.  
If operating at temperatures about +70°C, please advise when placing order.

Mounting data:

Mounting hole:  
Round: 0.625" (16mm).  
Suggested mounting bracket thickness = 0.250" max (6.35mm).  
Mounting nut torque:  
Head = 40-60 in-lb (4.5-6.8 Nm).  
Rod end = 5-15 in-lb (0.56-1.70 Nm).

\* Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.038mm).

Order No.	Stroke	Rod end linkage	Bore dia.	Leak at 50 psi max. SL/min	Leak at 100 psi max. SL/min	Body length
L4598.0500	0,5"	1/4" Ball	1,281"	2.12	9.6	1,725"
L4598.1000	1,0"	1/4" Ball	1,281"	2.12	9.6	2,225"
L4598.2000	2,0"	1/4" Ball	1,281"	2.12	9.6	3,225"
L4598.3000	3,0"	1/4" Ball	1,281"	2.12	9.6	4,225"
L4598.4000	4,0"	1/4" Ball	1,281"	2.12	9.6	5,225"
L4598.5000	5,0"	1/4" Ball	1,281"	2.12	9.6	6,225"
L4598.6000	6,0"	1/4" Ball	1,281"	2.12	9.6	7,225"



L4600

CYLINDERS

**Material**

Graphite carbon piston.  
Annealed borosilicate glass cylinder.  
Precision fire-polished bore.  
Stainless steel piston rod (AISI 304).  
Shock resistant rubber case.

**Technical Notes**

Piston area = 2.405 in<sup>2</sup> (1551.61mm<sup>2</sup>)  
Pressure range = full vacuum - 100 psi (0.69 MPa)  
Force factor:  
Piston area x pressure = output force.

Max force = 1070.61N (at 0.69 MPa)  
Minimum pressure differential required for actuation = 0.05 psi (345 Pa)  
Friction coefficient = 0.2  
Force without side load typically 0.5% - 1.5% of load.  
Operating temperature range: -55°C to 150°C.  
If operating at temperatures about +70°C, please advise when placing order.

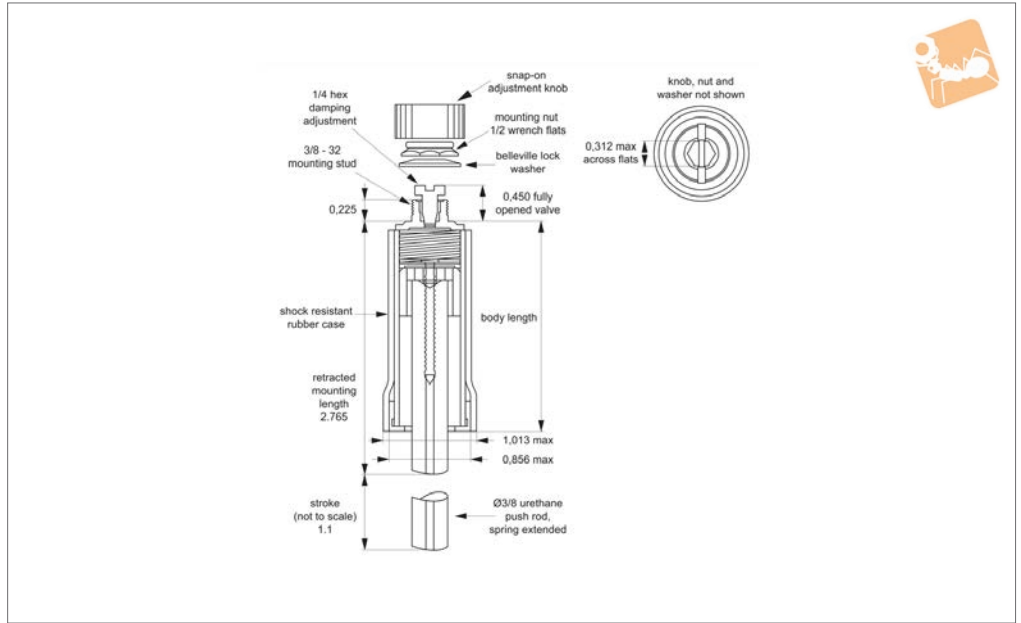
Mounting data:

Mounting hole:  
Round: 0.625" min (16mm).  
Suggested mounting bracket thickness = 0.250" max (6.35mm).  
Mounting nut torque:  
Head = 40-60 in-lb (4.5-6.8 Nm).  
Rod end = 5-15 in-lb (0.56-1.70 Nm).  
\* Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.038mm).

Order No.	Stroke	Rod end linkage	Bore dia.	Leak at 50 psi max. SL/min	Leak at 100 psi max. SL/min	Body length
L4600.0500	0,5"	1/4" Ball	1,75"	3.6	15.0	1,697"
L4600.1000	1,0"	1/4" Ball	1,75"	3.6	15.0	2,197"
L4600.2000	2,0"	1/4" Ball	1,75"	3.6	15.0	3,197"
L4600.3000	3,0"	1/4" Ball	1,75"	3.6	15.0	4,197"
L4600.4000	4,0"	1/4" Ball	1,75"	3.6	15.0	5,197"
L4600.5000	5,0"	1/4" Ball	1,75"	3.6	15.0	6,197"
L4600.6000	6,0"	1/4" Ball	1,75"	3.6	15.0	7,197"



L4620



CYLINDERS

**Material**

Shock resistant rubber case.  
Urethane push rod.  
Pyrex glass cylinder.

**Technical Notes**

Max operating temperature: -55°C to +150°C.  
(Please advise if operating at temperatures

over +70°C).

Piston friction force without side load = less than 1 gram.

Mounting data:

Mounting hole:  
Rectangular: 0.312" x 0.375" (8mm x 10mm)

Round: 0.375" (10mm)

Suggested mounting bracket thickness: 0.060" - 0.125" (1.52 - 3.18mm)

Mounting nut torque:

Head: 4-8 in-lb (0.45 to 0.90 Nm)

Level of shock absorption adjustable by hand.

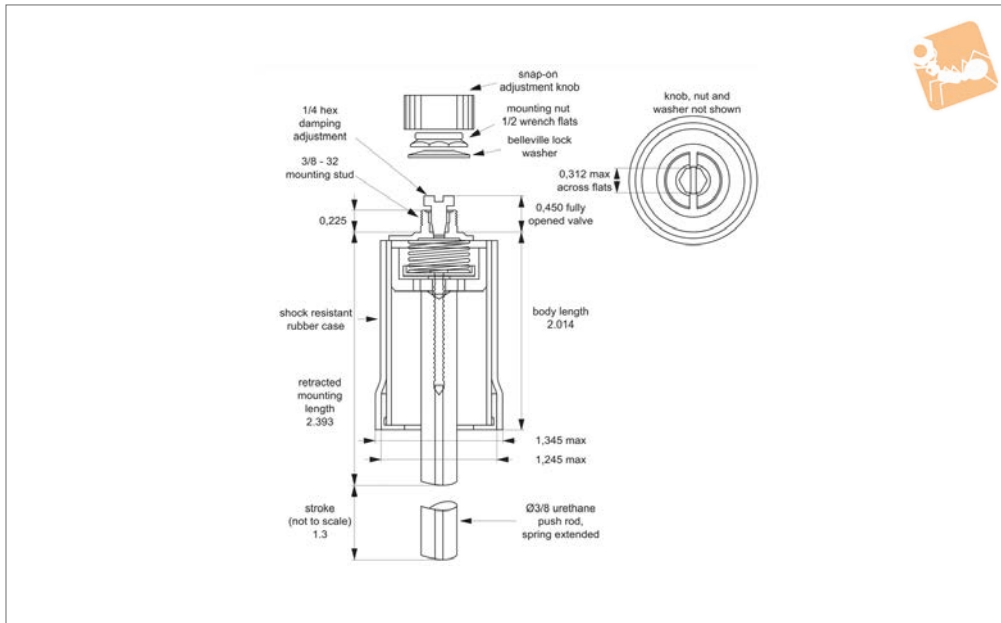
Order No.	Stroke	Energy capacity ft·lb	Spring force extended lb	Spring force retracted lb	Push rod reset time with valve fully open m/s	Push rod reset time with valve fully closed m/s	Friction coefficient
L4620.627	1,1"	0-0,3	0,16	0,28	30	50	0,2



# Shock Absorber

0.945" bore

## Cylinders



**L4622**

CYLINDERS

### Material

Shock resistant rubber case.  
Urethane push rod.  
Pyrex glass cylinder.

### Technical Notes

Max operating temperature: -55°C to +150°C.  
(Please advise if operating at temperatures

over +70°C).

Piston friction force without side load = less than 1 gram.

Mounting data:

Mounting hole:

Rectangular: 0.312" x 0.375" (8mm x 10mm)

Round: 0.375" (10mm)

Suggested mounting bracket thickness: 0.060" - 0.125" (1.52 - 3.18mm)

Mounting nut torque:

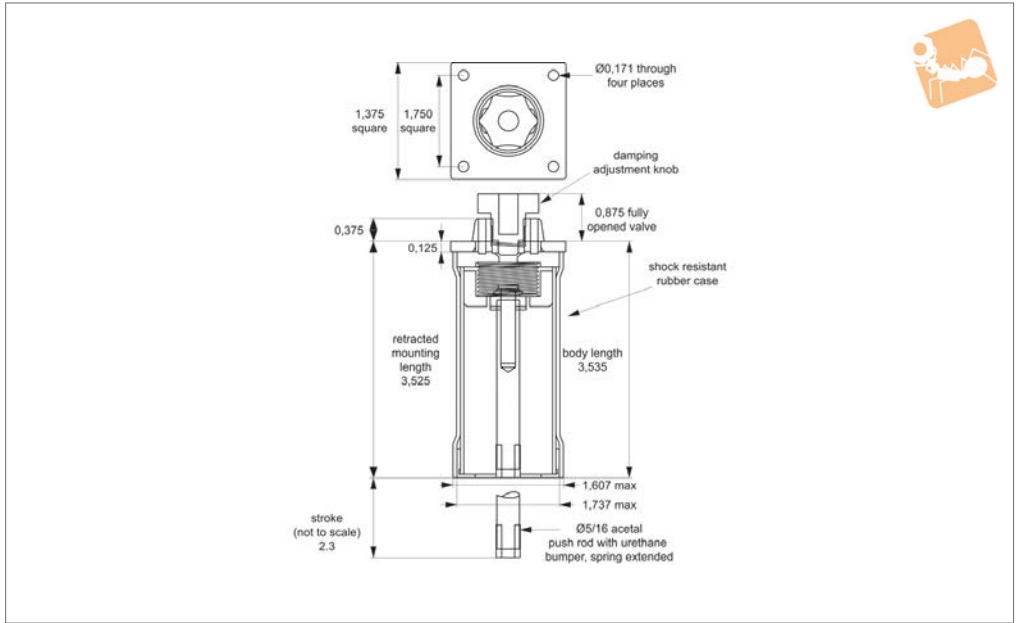
Head: 4-8 in-lb (0.45 to 0.90 Nm)

Level of shock absorption adjustable by hand.

Order No.	Stroke	Energy capacity ft·lb	Spring force extended lb	Spring force retracted lb	Push rod reset time with valve fully open m/s	Push rod reset time with valve fully closed m/s	Friction coefficient
L4622.945	1,3	0-0,75	0,13	0,27	60	90	0,2



L4624



CYLINDERS

**Material**

Shock resistant rubber case.  
Urethane push rod.  
Pyrex glass cylinder.

+150°C.  
(Please advise if operating at temperatures over +70°C).  
Piston friction force without side load = less than 4 grams.

Level of shock absorption adjustable by hand.

**Technical Notes**

Max operating temperature: -55°C to

Order No.	Stroke	Energy capacity ft·lb	Spring force extended lb	Spring force retracted lb	Push rod reset time with valve fully open m/s	Push rod reset time with valve fully closed m/s	Friction coefficient
L4624.1281	2,3"	0-3	0,25	0,5	70	150	0,2

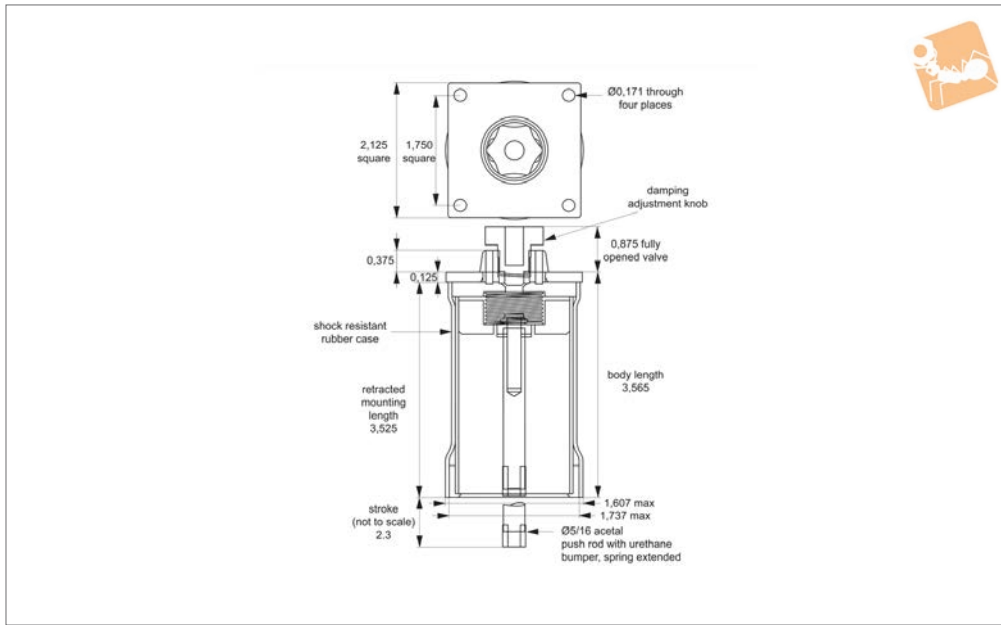




# Shock Absorber

1,750 bore

## Cylinders



**L4626**

CYLINDERS

### Material

Shock resistant rubber case.  
Urethane push rod.  
Pyrex glass cylinder.

+150°C.

(Please advise if operating at temperatures over +70°C).

Piston friction force without side load = less than 8 gram.

Level of shock absorption adjustable by hand.

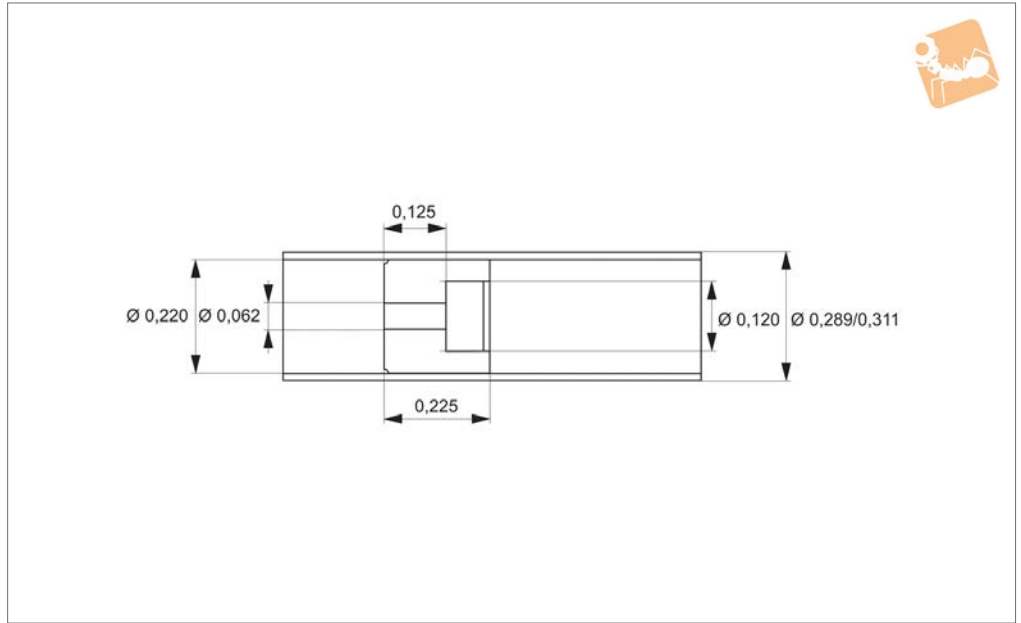
### Technical Notes

Max operating temperature: -55°C to

Order No.	Stroke	Energy capacity ft·lb	Spring force extended lb	Spring force retracted lb	Push rod reset time with valve fully open m/s	Push rod reset time with valve fully closed m/s	Friction coefficient
L4626.1750	2,3"	0-7	0,25	0,5	161	430	0,2



**L4630**



**Material**

Piston: Carbon graphite  
Cylinder: Glass

**Technical Notes**

Max operating temp = 260°C

**Important Notes**

Specials available on request.

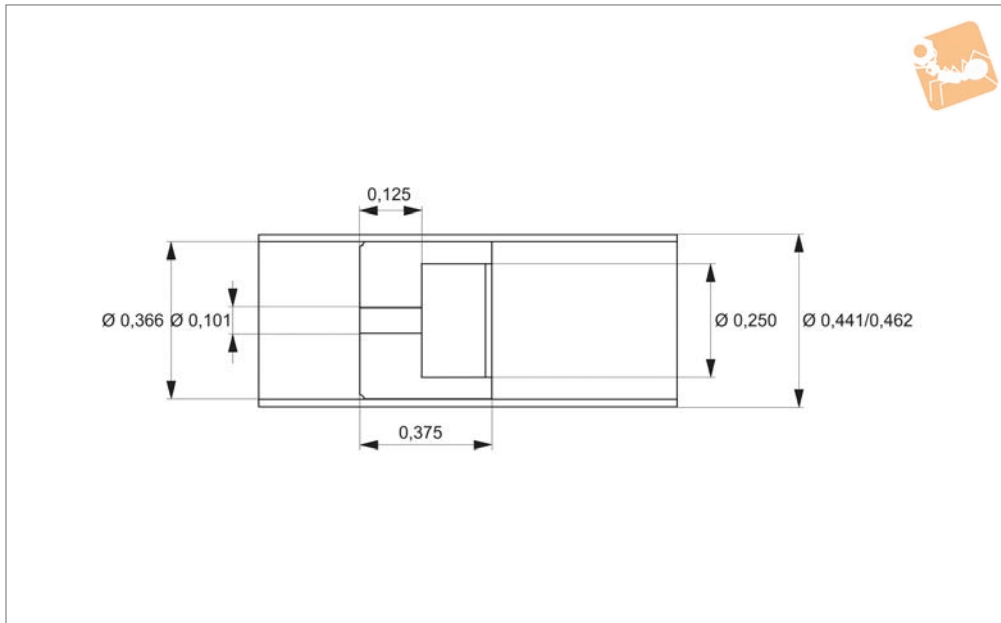
Order No.	Stroke	Bore dia.	Outside dia.	Cylinder length	Piston length	Piston area in <sup>2</sup>	Friction w/o sideload g	Cylinder weight g	Piston weight g
L4630.0500	0,5"	0.220	0.311	0,825"	0.225	0.038	< 1	1.39	0.20
L4630.1000	1,0"	0.220	0.311	1,325"	0.225	0.038	< 1	1.39	0.20
L4630.2000	2,0"	0.220	0.311	2,325"	0.225	0.038	< 1	1.39	0.20
L4630.3000	3,0"	0.220	0.311	3,325"	0.225	0.038	< 1	1.39	0.20
L4630.4000	4,0"	0.220	0.311	4,325"	0.225	0.038	< 1	1.39	0.20
L4630.5000	5,0"	0.220	0.311	5,325"	0.225	0.038	< 1	1.39	0.20
L4630.6000	6,0"	0.220	0.311	6,325"	0.225	0.038	< 1	1.39	0.20
L4630.7000	7,0"	0.220	0.311	7,325"	0.225	0.038	< 1	1.39	0.20
L4630.8000	8,0"	0.220	0.311	8,325"	0.225	0.038	< 1	1.39	0.20



# Cylinder / Piston Set

0,366" bore

## Cylinders



**L4632**

CYLINDERS

### Material

Piston: Carbon graphite  
Cylinder: Glass

### Technical Notes

Max operating temp = 260°C

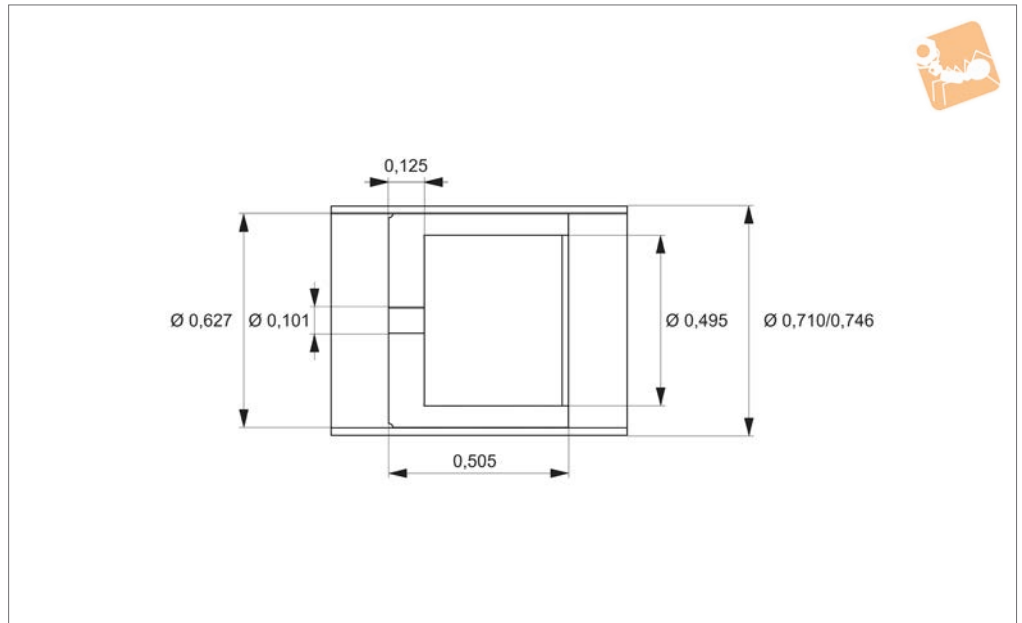
### Important Notes

Specials available on request.

Order No.	Stroke	Bore dia.	Outside dia.	Cylinder length	Piston length	Piston area in <sup>2</sup>	Friction W/O sideload g	Cylinder weight g	Piston weight g
L4632.0500	0,5"	0.336	0.462	0,975"	0.375	0.105	< 1	2.29	0.77
L4632.1000	1,0"	0.336	0.462	1,475"	0.375	0.105	< 1	2.29	0.77
L4632.2000	2,0"	0.336	0.462	2,475"	0.375	0.105	< 1	2.29	0.77
L4632.3000	3,0"	0.336	0.462	3,475"	0.375	0.105	< 1	2.29	0.77
L4632.4000	4,0"	0.336	0.462	4,475"	0.375	0.105	< 1	2.29	0.77
L4632.5000	5,0"	0.336	0.462	5,475"	0.375	0.105	< 1	2.29	0.77
L4632.6000	6,0"	0.336	0.462	6,475"	0.375	0.105	< 1	2.29	0.77
L4632.7000	7,0"	0.336	0.462	7,475"	0.375	0.105	< 1	2.29	0.77
L4632.8000	8,0"	0.336	0.462	8,475"	0.375	0.105	< 1	2.29	0.77



**L4634**



**Material**

Piston: Carbon graphite  
Cylinder: Glass

**Technical Notes**

Max operating temp = 260°C

**Important Notes**

Specials available on request.

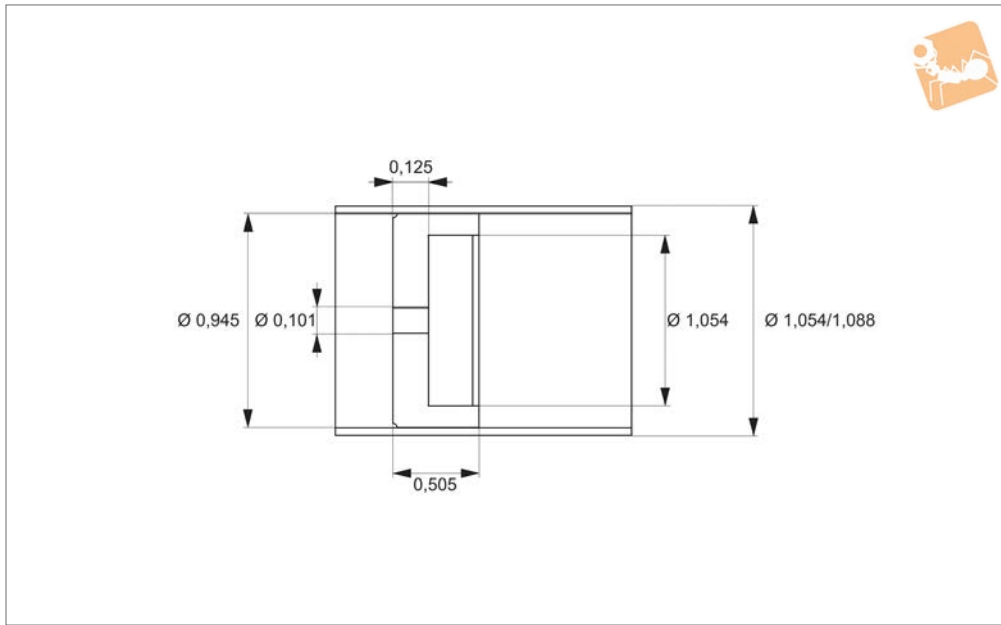
Order No.	Stroke	Bore dia.	Outside dia.	Cylinder length	Piston length	Piston area in <sup>2</sup>	Friction w/o sideload g	Cylinder weight g	Piston weight g
L4634.0500	0,5"	0,627	1,246"	0,605	0,505	0,309	< 1	4,71	2,37
L4634.1000	1,0"	0,627	1,746"	0,605	0,505	0,309	< 1	4,71	2,37
L4634.2000	2,0"	0,627	2,746"	0,605	0,505	0,309	< 1	4,71	2,37
L4634.3000	3,0"	0,627	3,746"	0,605	0,505	0,309	< 1	4,71	2,37
L4634.4000	4,0"	0,627	4,746"	0,605	0,505	0,309	< 1	4,71	2,37
L4634.5000	5,0"	0,627	5,746"	0,605	0,505	0,309	< 1	4,71	2,37
L4634.6000	6,0"	0,627	6,746"	0,605	0,505	0,309	< 1	4,71	2,37
L4634.7000	7,0"	0,627	7,746"	0,605	0,505	0,309	< 1	4,71	2,37
L4634.8000	8,0"	0,627	8,746"	0,605	0,505	0,309	< 1	4,71	2,37



# Cylinder / Piston Set

0,945" bore

## Cylinders



**L4636**

CYLINDERS

### Material

Piston: Carbon graphite  
Cylinder: Glass

### Technical Notes

Max operating temp = 260°C

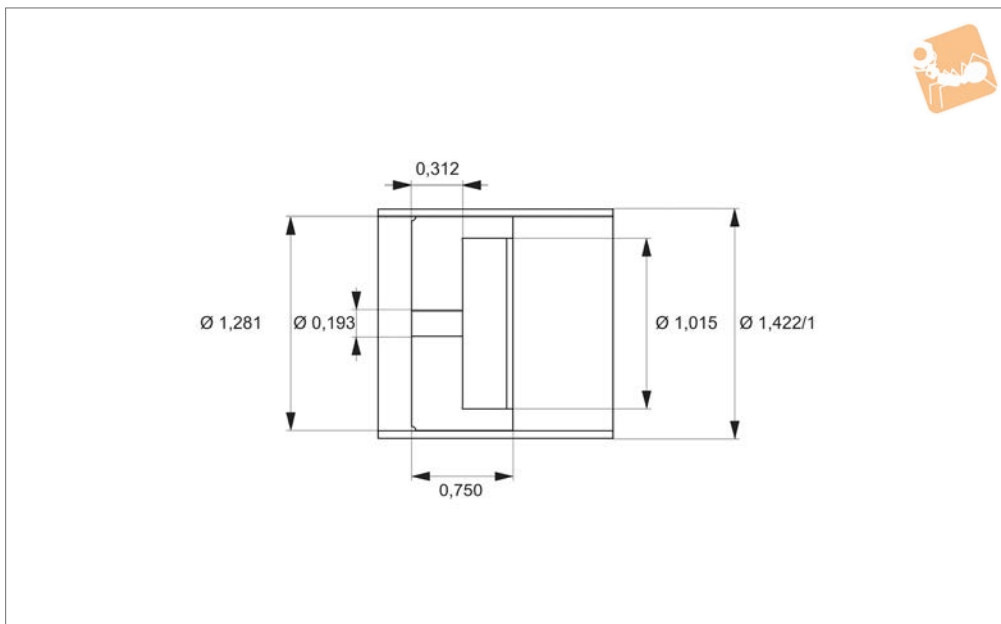
### Important Notes

Specials available on request.

Order No.	Stroke	Bore dia.	Outside dia.	Cylinder length	Piston length	Piston area in <sup>2</sup>	Friction W/O sideload g	Cylinder weight g	Piston weight g
L4636.0500	0,5"	0.945	1.088	1,105"	0.505	0.701	< 1	8.39	4.66
L4636.1000	1,0"	0.945	1.088	1,605"	0.505	0.701	< 1	8.39	4.66
L4636.2000	2,0"	0.945	1.088	2,605"	0.505	0.701	< 1	8.39	4.66
L4636.3000	3,0"	0.945	1.088	3,605"	0.505	0.701	< 1	8.39	4.66
L4636.4000	4,0"	0.945	1.088	4,605"	0.505	0.701	< 1	8.39	4.66
L4636.5000	5,0"	0.945	1.088	5,605"	0.505	0.701	< 1	8.39	4.66
L4636.6000	6,0"	0.945	1.088	6,605"	0.505	0.701	< 1	8.39	4.66
L4636.7000	7,0"	0.945	1.088	7,605"	0.505	0.701	< 1	8.39	4.66
L4636.8000	8,0"	0.945	1.088	8,605"	0.505	0.701	< 1	8.39	4.66



**L4638**



**Material**

Piston: Carbon graphite  
Cylinder: Glass

**Technical Notes**

Max operating temp = 260°C

**Important Notes**

Specials available on request.

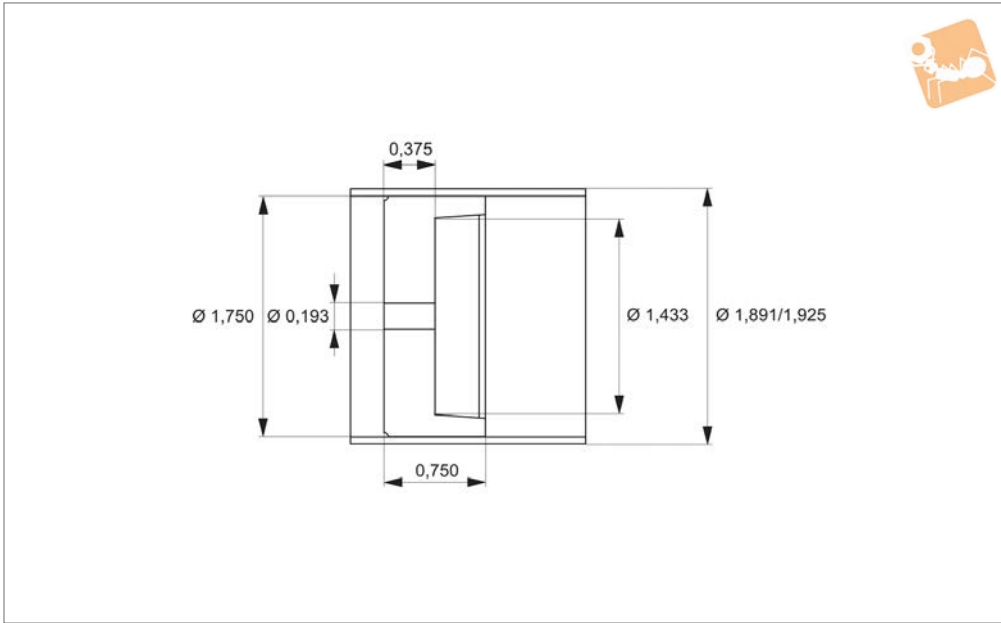
Order No.	Stroke	Bore dia.	Outside dia.	Cylinder length	Piston length	Piston area in <sup>2</sup>	Friction w/o sideload g	Cylinder weight g	Piston weight g
L4638.0500	0,5"	1.281	1.456	1,350"	0.750	1.289	< 1	13.82	17.75
L4638.1000	1,0"	1.281	1.456	1,850"	0.750	1.289	< 1	13.82	17.75
L4638.2000	2,0"	1.281	1.456	2,850"	0.750	1.289	< 1	13.82	17.75
L4638.3000	3,0"	1.281	1.456	3,850"	0.750	1.289	< 1	13.82	17.75
L4638.4000	4,0"	1.281	1.456	4,850"	0.750	1.289	< 1	13.82	17.75
L4638.5000	5,0"	1.281	1.456	5,850"	0.750	1.289	< 1	13.82	17.75
L4638.6000	6,0"	1.281	1.456	6,850"	0.750	1.289	< 1	13.82	17.75
L4638.7000	7,0"	1.281	1.456	7,850"	0.750	1.289	< 1	13.82	17.75
L4638.8000	8,0"	1.281	1.456	8,850"	0.750	1.289	< 1	13.82	17.75



# Cylinder / Piston Set

1,750" bore

## Cylinders



**L4640**

CYLINDERS

### Material

Piston: Carbon graphite  
Cylinder: Glass

### Technical Notes

Max operating temp = 260°C

### Important Notes

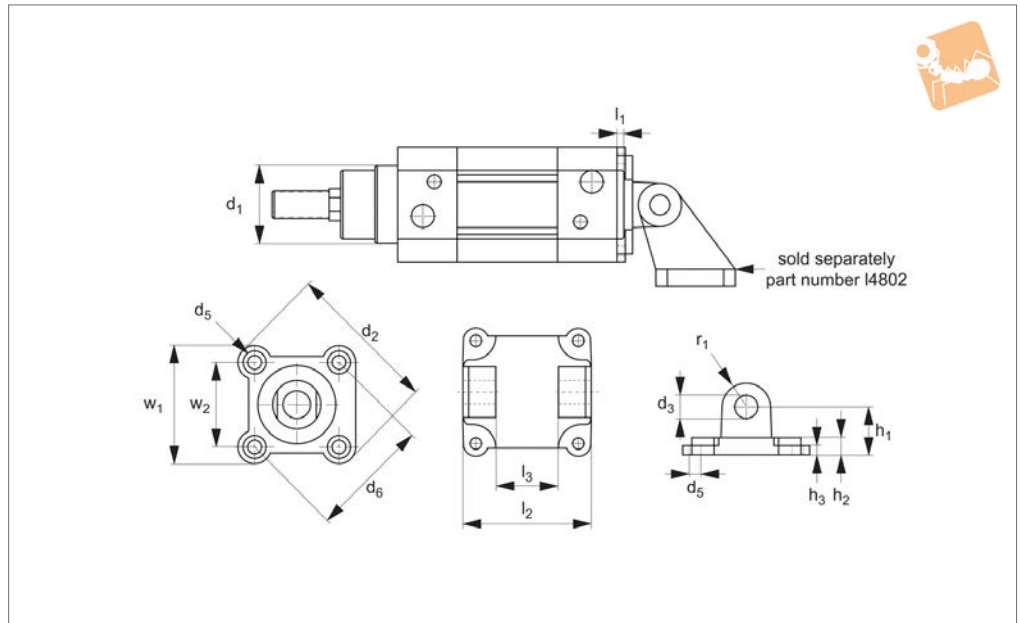
Specials available on request.

Order No.	Stroke	Bore dia.	Outside dia.	Cylinder length	Piston length	Piston area in <sup>2</sup>	Friction W/O sideload g	Cylinder weight g	Piston weight g
L4640.0500	0,5"	1.750	1.925	1.350	0.750	2.406	< 1	18.56	34.60
L4640.1000	1,0"	1.750	1.925	1.850	0.750	2.406	< 1	18.56	34.60
L4640.2000	2,0"	1.750	1.925	2.850	0.750	2.406	< 1	18.56	34.60
L4640.3000	3,0"	1.750	1.925	3.850	0.750	2.406	< 1	18.56	34.60
L4640.4000	4,0"	1.750	1.925	4.850	0.750	2.406	< 1	18.56	34.60
L4640.5000	5,0"	1.750	1.925	5.850	0.750	2.406	< 1	18.56	34.60
L4640.6000	6,0"	1.750	1.925	6.850	0.750	2.406	< 1	18.56	34.60
L4640.7000	7,0"	1.750	1.925	7.850	0.750	2.406	< 1	18.56	34.60
L4640.8000	8,0"	1.750	1.925	8.850	0.750	2.406	< 1	18.56	34.60





**L4800**



**Material**  
Steel (DIN 1040).

**Technical Notes**  
ISO 15552

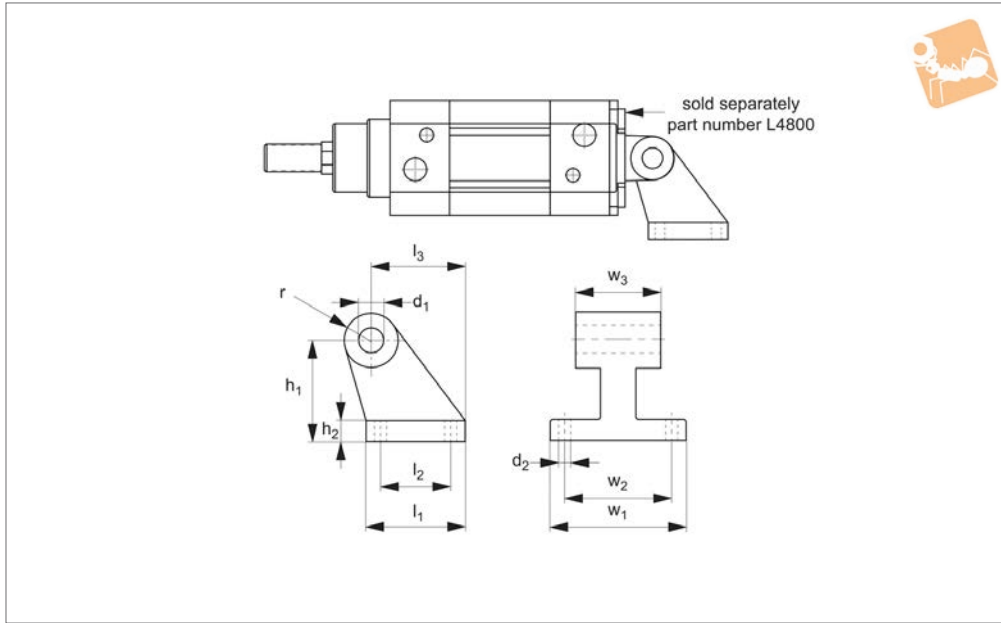
Order No.	Cylinder dia.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	r <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	w <sub>1</sub>	w <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>
L4800.032	32	30	59.0	10	7	11	46.0	10	4	45	26	45	32.5	22	10	6.5
L4800.040	40	35	70.2	12	7	11	53.7	12	4	52	28	54	38.0	25	10	7.0
L4800.050	50	40	84.2	12	9	15	65.7	13	4	60	32	65	46.5	27	11	5.5
L4800.063	63	45	99.5	16	9	15	80.0	16	4	70	40	76	56.5	32	11	6.5
L4800.080	80	45	123.8	16	11	18	101.8	16	5	90	50	94	72.0	36	14	7.0
L4800.100	100	55	148.8	20	11	18	125.9	19	6	110	60	112	89.0	41	14	7.0
L4800.125	125	60	179.5	25	13	20	155.5	25	7	130	70	134	110.0	50	20	10.0
L4800.160	160	65	252.0	30	17	26	198.0	32	8	170	90	186	140.0	55	20	15.0



# Air Cylinder Mounts - ISO Series

clevis foot mounting

Cylinders



**L4802**

CYLINDERS

**Material**

Steel (DIN 1040).

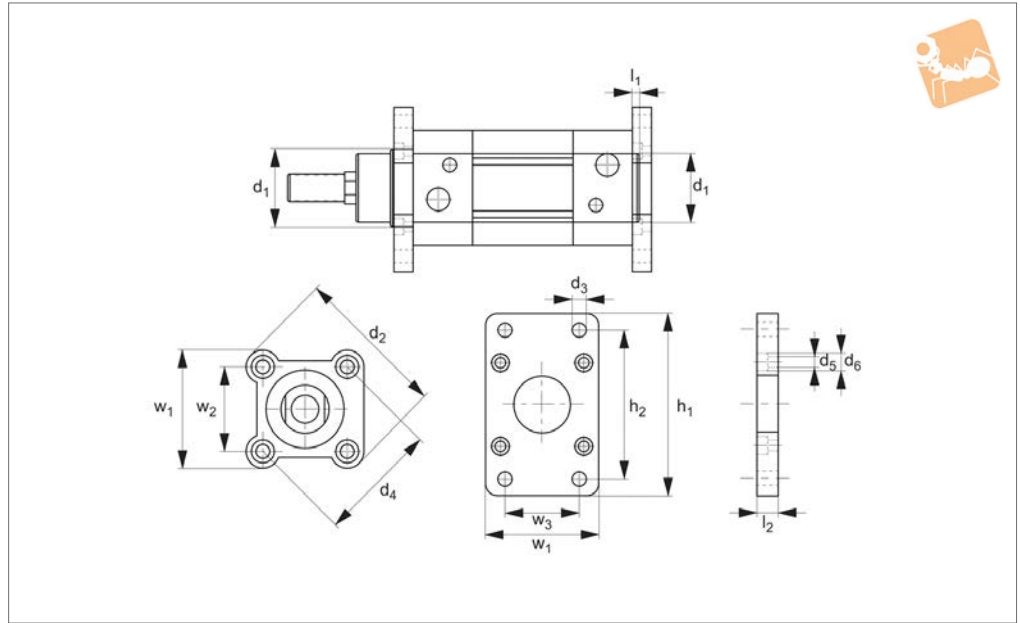
**Technical Notes**

ISO series

Order No.	Cylinder dia.	d <sub>1</sub>	d <sub>2</sub>	r	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	w <sub>1</sub>	w <sub>2</sub>	w <sub>3</sub>	h <sub>1</sub>	h <sub>2</sub>
L4802.032	32	10	7	10.0	31	18	27.5	51	38	26	32	8
L4802.040	40	12	7	11.0	35	22	30.5	54	41	28	36	10
L4802.050	50	12	9	13.0	45	30	40.5	65	50	32	45	12
L4802.063	63	16	9	15.0	50	35	44.5	67	52	40	50	12
L4802.080	80	16	11	15.0	60	40	57.0	86	66	50	63	14
L4802.100	100	20	11	20.0	70	50	65.0	96	76	60	71	15
L4802.125	125	25	13	22.5	90	60	85.0	124	94	70	90	20
L4802.160	160	30	14	31.5	126	88	116.0	156	118	90	115	25



L4804



**Material**  
Steel (DIN 1040).

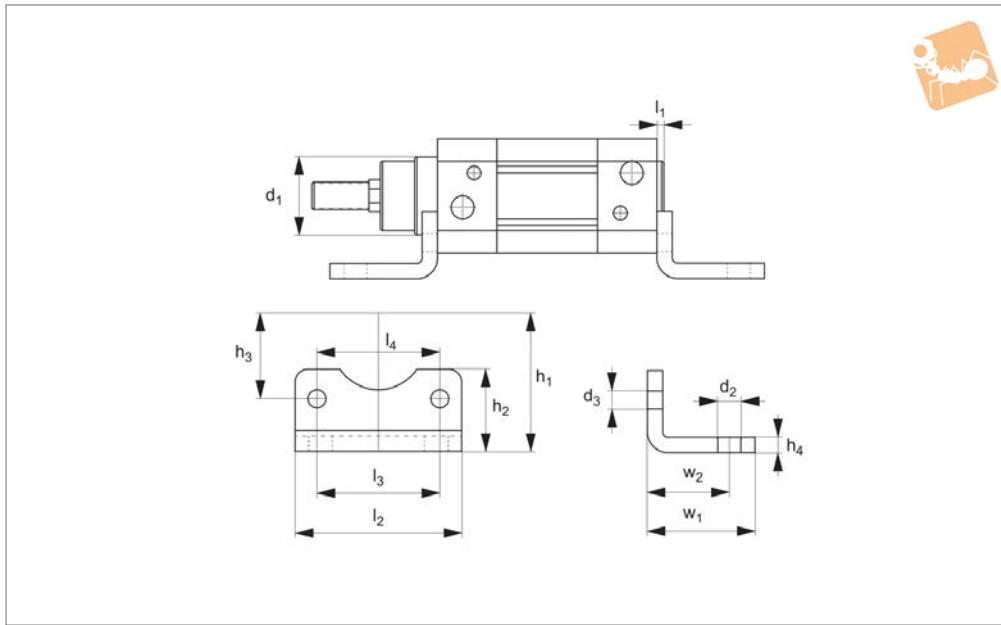
**Technical Notes**  
ISO series

Order No.	Cylinder dia.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	l <sub>1</sub>	l <sub>2</sub>	w <sub>1</sub>	w <sub>2</sub>	w <sub>3</sub>	h <sub>1</sub>	h <sub>2</sub>
L4804.032	32	30	59.0	7	46.0	7	11	4	10	46	32.5	32	77	64
L4804.040	40	35	70.2	9	53.7	7	11	4	10	54	38.0	36	90	72
L4804.050	50	40	84.2	9	65.7	9	15	4	12	65	46.5	45	110	90
L4804.063	63	45	99.5	9	80.0	9	15	4	12	80	56.5	50	120	100
L4804.080	80	45	123.8	12	101.8	11	18	5	16	94	72.0	63	150	126
L4804.100	100	55	148.8	14	125.9	11	18	6	16	112	89.0	75	175	150
L4804.125	125	60	179.5	16	155.5	13	20	7	20	140	110.0	90	220	180
L4804.160	160	65	252.0	18	198.0	17	26	8	20	186	140.0	115	280	230



# Air Cylinder Mounts - ISO Series

clevis foot bracket



**L4806**

CYLINDERS

**Material**

Steel (DIN 1040).

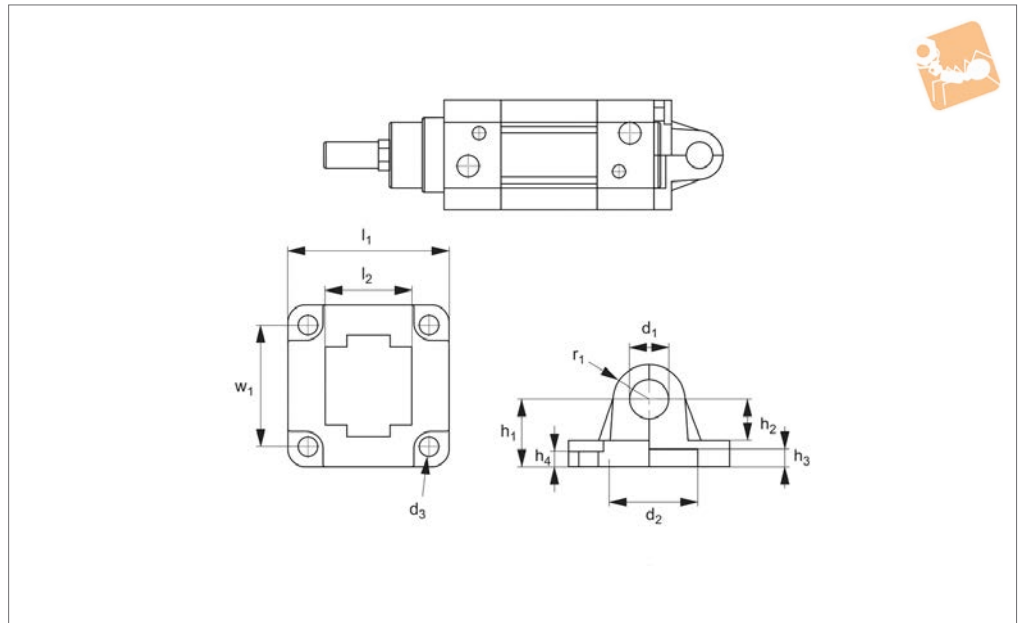
**Technical Notes**

ISO series

Order No.	Cylinder dia.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	w <sub>1</sub>	w <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub>
L4806.032	32	30	7	7	4	45	32	32.5	35	24	32	31.0	16.3	4
L4806.040	40	35	9	7	4	52	36	38.0	36	28	36	31.5	19.0	4
L4806.050	50	40	9	9	4	65	45	46.5	47	32	45	37.0	23.3	5
L4806.063	63	45	9	9	4	75	50	56.5	45	32	50	36.0	28.3	5
L4806.080	80	45	12	1	5	95	63	72.0	53	41	63	47.8	36.0	6
L4806.100	100	55	14	1	6	115	75	89.0	56	41	71	53.0	44.5	6
L4806.125	125	60	16	13	7	139	90	110.0	70	45	90	80.5	55.0	8
L4806.160	160	65	18	17	8	186	115	140.0	85	60	115	100.0	70.0	10



**L4808**



**Material**  
Steel (DIN 1040).

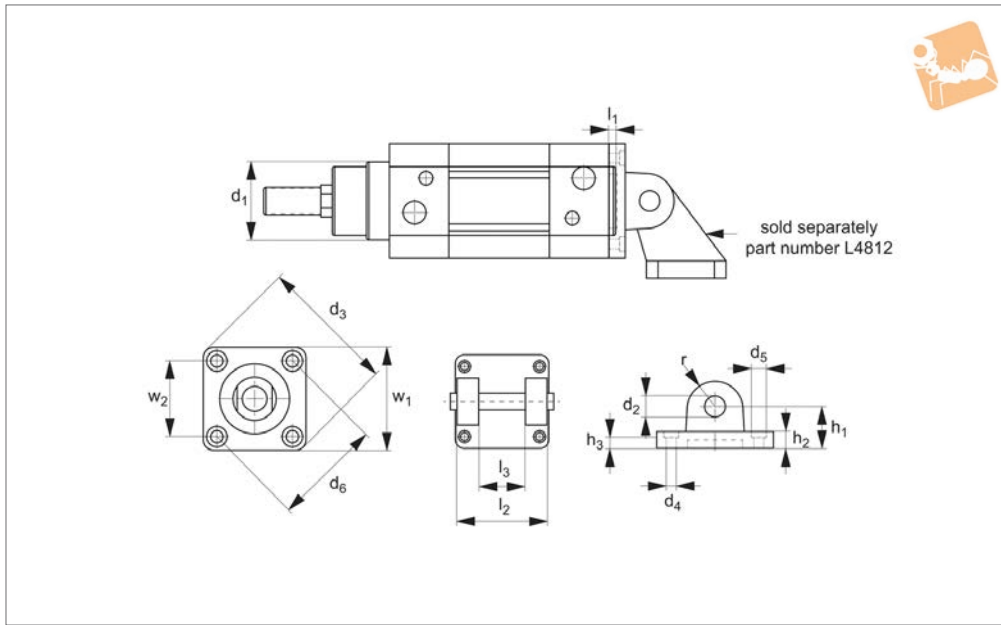
**Technical Notes**  
ISO series

Order No.	Cylinder dia.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	r <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	w <sub>1</sub>	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub>
L4808.032	32	10	30	7	10	45	26	32.5	22	11	4.5	7.0
L4808.040	40	12	35	7	12	52	28	38.0	25	16	4.5	6.0
L4808.050	50	12	40	9	13	64	32	46.5	27	16	4.5	8.0
L4808.063	63	16/18	45	9	16	78	40	56.5	32	20	6.5	6.5
L4808.080	80	16	45	11	16	96	50	72.0	36	22	6.5	10.0
L4808.100	100	20	55	11	20	115	60	89.0	41	27	8.0	10.0
L4808.125	125	25	60	13	25	136	70	110.0	55	30	11.0	13.0



# Air Cylinder Mounts - CETOP Series

swivel flange



**L4810**

CYLINDERS

**Material**

Steel (DIN 1040).

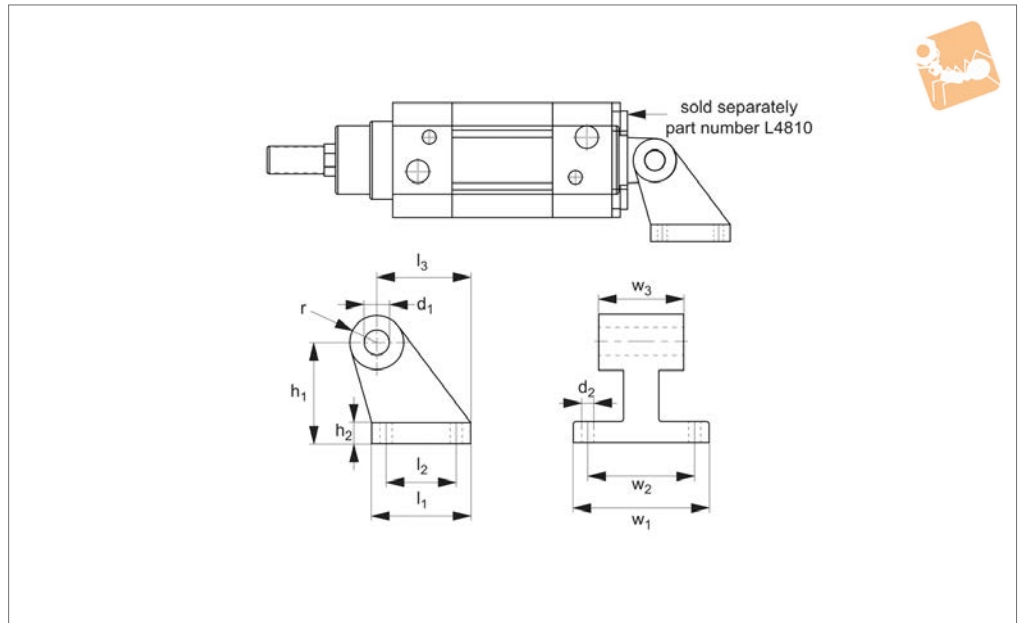
**Technical Notes**

CETOP Series

Order No.	Cylinder dia.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	R	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	w <sub>1</sub>	w <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>
L4810.032	32	30	10	58	7	11	46	10	4	45	26	45	32.5	22	8	3
L4810.040	40	35	12	71	7	11	56	13	5	52	28	54	39.6	25	9	4
L4810.050	50	40	12	85	9	15	68	16	5	60	32	65	48.0	27	11	5
L4810.063	63	42	16	105	9	15	84	18	6	70	40	80	59.4	35	12	5
L4810.080	80	48	16	125	11	18	100	18	6	90	50	96	70.7	38	14	6
L4810.100	100	56	20	166	11	18	132	23	7	110	60	126	93.4	43	15	7
L4810.125	125	63	25	190	13	20	150	30	10	130	70	140	106.0	55	20	8
L4810.160	160	80	30	252	17	26	190	32	10	170	90	180	134.4	60	22	8



**L4812**



**Material**  
Steel (DIN 1040).

**Technical Notes**  
CETOP Series

Order No.	Cylinder dia.	d <sub>1</sub>	d <sub>2</sub>	r	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	w <sub>1</sub>	w <sub>2</sub>	w <sub>3</sub>	h <sub>1</sub>	h <sub>2</sub>
L4812.032	32	10	5.5	10.0	31	18	27.5	51	38	26	32	8
L4812.040	40	12	5.5	11.0	35	22	30.5	54	41	28	36	10
L4812.050	50	12	6.5	13.0	45	30	40.5	65	50	32	45	12
L4812.063	63	16	6.5	15.0	50	35	44.5	67	52	40	50	12
L4812.080	80	16	9.0	15.0	60	40	57	86	66	50	63	14
L4812.100	100	20	9.0	20.0	70	50	65	96	76	60	71	15
L4812.125	125	25	11.0	22.5	90	60	85	124	94	70	90	20
L4812.160	160	30	14.0	31.5	126	88	116	156	118	90	115	25

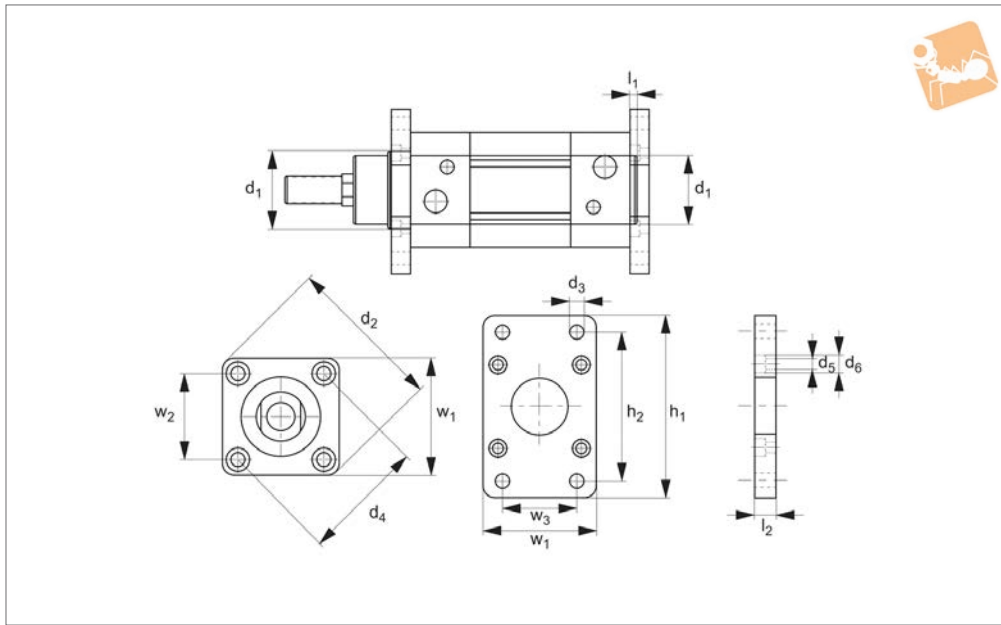




# Air Cylinder Mounts - CETOP Series

mounting flange

Cylinders



**L4814**

CYLINDERS

**Material**

Steel (DIN 1040).

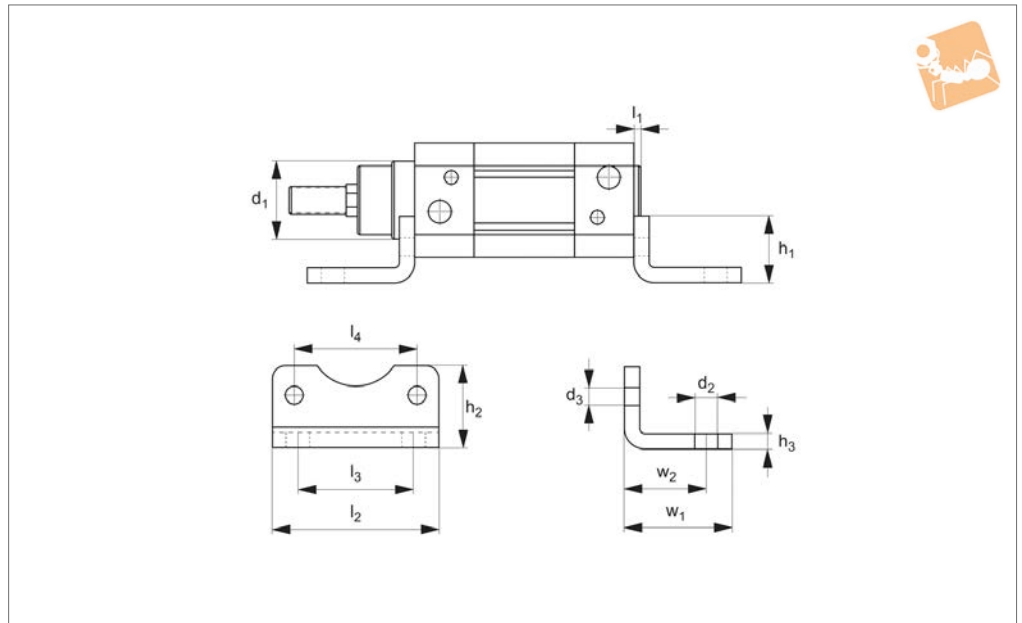
**Technical Notes**

CETOP Series

Order No.	Cylinder dia.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	l <sub>1</sub>	l <sub>2</sub>	w <sub>1</sub>	w <sub>2</sub>	w <sub>3</sub>	h <sub>1</sub>	h <sub>2</sub>
L4814.032	32	30	58	7	46	6	11	4	10	46	32.5	32	77	64
L4814.040	40	35	71	9	56	6	11	5	10	54	39.6	36	90	72
L4814.050	50	40	85	9	68	7	15	5	12	65	48.0	45	110	90
L4814.063	63	42	105	9	84	7	15	6	15	80	59.4	50	125	100
L4814.080	80	48	125	12	100	9	18	6	18	94	70.7	63	154	126
L4814.100	100	56	166	14	132	9	18	7	18	125	93.4	75	186	150
L4814.125	125	63	190	16	150	13	20	10	25	140	106.0	90	220	180
L4814.160	160	80	252	18	190	15	26	10	25	186	134.4	115	280	230



**L4816**



**Material**  
Steel (DIN 1040).

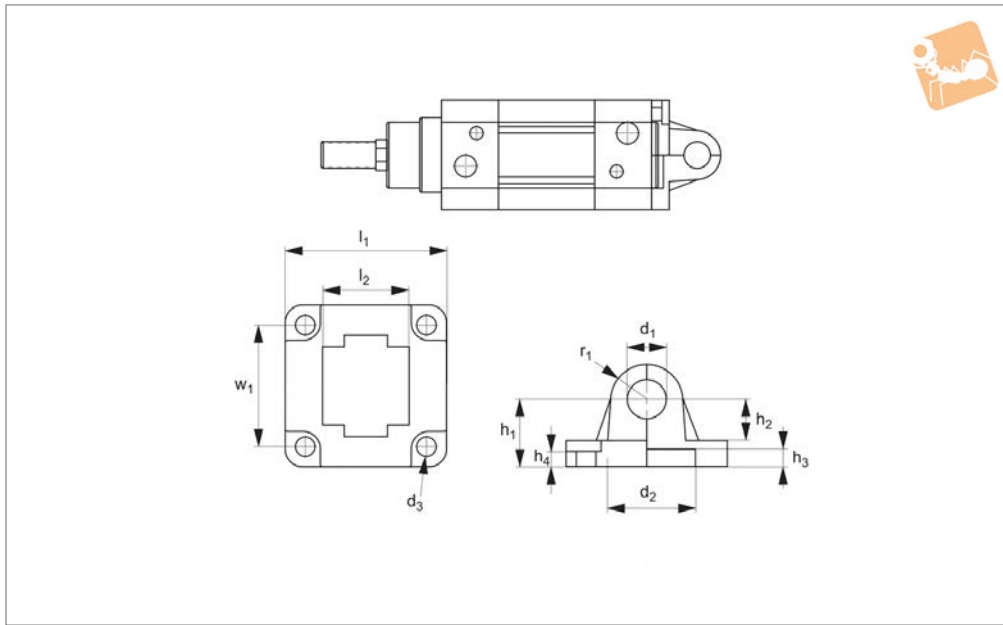
**Technical Notes**  
CETOP Series

Order No.	Cylinder dia.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	w <sub>1</sub>	w <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>
L4816.032	32	30	7	6	4	45	32	32.5	32	24	32	24	4
L4816.040	40	35	9	6	5	54	36	39.6	38	28	36	25	5
L4816.050	50	40	9	7	5	65	45	48.0	42	32	45	32	6
L4816.063	63	42	9	7	6	80	50	59.4	50	35	50	36	6
L4816.080	80	48	12	9	6	96	63	70.7	60	43	63	47	8
L4816.100	100	56	14	9	7	126	75	93.4	57	43	71	54	8
L4816.125	125	63	16	13	10	140	90	106.0	69	50	90	55	11
L4816.160	160	80	18	15	10	180	115	134.4	87	65	115	70	13



# Air Cylinder Mounts - CETOP Series

EBX foot mounting



**L4818**

CYLINDERS

**Material**

Steel (DIN 1040).

**Technical Notes**

CETOP Series

Order No.	Cylinder dia.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	r <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	w <sub>1</sub>	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub>
L4818.032	32	10	30	6	10	45	26	32.5	22	14	4.5	7.0
L4818.040	40	12	35	6	12	52	28	39.6	25	16	4.5	6.0
L4818.050	50	12	40	7	12	64	32	48.0	27	16	4.5	7.0
L4818.063	63	16/18	42	7	16	78	40	59.4	32	23	6.5	6.5
L4818.080	80	16/18	48	9	16	95	50	70.7	36	24	6.5	10.0
L4818.100	100	20	56	9	20	115	60	93.4	43	28	7.0	10.0
L4818.125	125	25	63	11	30	136	70	106.0	55	35	10.0	13.0