

LB series profile cylinders

ATS PNEUMATICS | SINGLE ACTING | PU SEALS | ISO 15552



Single-acting, single-rod cylinders with a magnetic piston. Compressed air extends the rod; an internal spring retracts it when the powered chamber is exhausted. Built in-house at ATS Pneumatics in Christchurch.

Specification	ATS LB PU version
Verified bore sizes	32, 40, 50, 63, 80 and 100 mm
Stroke range in this guide	25-100 mm; spring suitability to be checked for intermediate strokes
Common listed strokes	25, 40, 50, 75, 80 and 100 mm
Working pressure	1-10 bar; required pressure depends on spring and application load
PU temperature range	-20 to +80 degrees C
Air supply	Filtered compressed air, lubricated or non-lubricated
Position sensing	Magnetic piston; profile slots for compatible sensors
Rod and barrel	Chrome-plated C40 steel rod; anodised aluminium profile

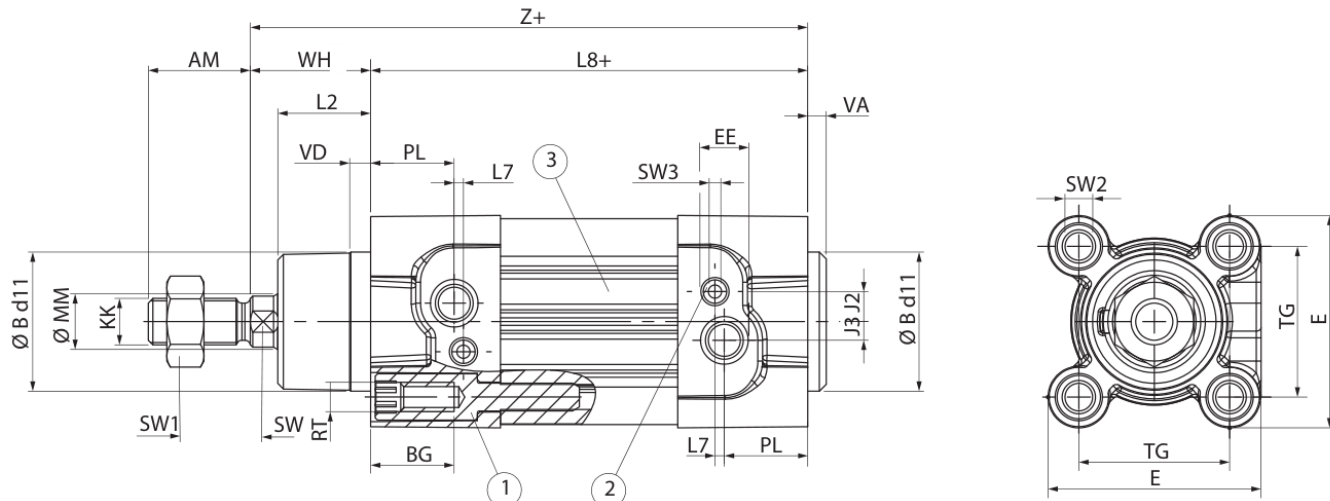
Built for the selected stroke

All ATS LB cylinders are made in-house. This guide covers the PU build and the six LB bores documented by Aignep. The black-ended product image is a colour illustration. Other seal executions, 125 mm bore and strokes above 100 mm are outside this guide.

PU identifies the selected seal option; it does not mean every internal O-ring is polyurethane. A spring-return cylinder is not a mechanical lock or a verified load-holding device.

Dimensional drawing

LB manufacturer drawing. All numeric dimensions are in mm. The diagram is schematic and does not scale to the selected stroke.



Drawing references

1. Threaded socket-head fixing screws for mounting attachments.
2. End-position adjustment screws shown in the manufacturer drawing.
3. Slots for compatible proximity sensors.

Bore	Rod MM	Port EE	Rod thread KK	Z base	L8 base	WH fixed
32	12	G 1/8	M10X1.25	145	119	26
40	16	G 1/4	M12X1.25	160	130	30
50	20	G 1/4	M16X1.5	168	131	37
63	20	G 3/8	M16X1.5	183	146	37
80	25	G 3/8	M20X1.5	199	153	46
100	25	G 1/2	M20X1.5	214.5	163	51.5

Add the exact stroke to Z and L8 only

For a 50 mm bore and 75 mm stroke: **Z = 168 + 75 = 243 mm** and **L8 = 131 + 75 = 206 mm**. WH stays **37 mm**. Use the exact physical stroke, not the internal pricing-band SKU.

Z and L8 are the labelled drawing datums. They must not both be called overall length: rod thread, projecting bosses, mounts and sensors must be assessed separately. The selected-size PDF gives the calculated datums and all bore-specific dimensions.

Bore-specific dimensions

These are reference/base dimensions for the bare LB cylinder. Add stroke only where the drawing has a + mark. WH is fixed by bore.

Drawing reference	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm
B d11	30	35	40	45	45	55
VD	10	10.5	11.5	15	15.7	19.2
VA	4	4	4	4	4	4
L2	16	20	25	26	32	35
WH (fixed)	26	30	37	37	46	51.5
MM - rod diameter	12	16	20	20	25	25
SW	10	13	17	17	22	22
KK - rod thread	M10X1.25	M12X1.25	M16X1.5	M16X1.5	M20X1.5	M20X1.5
AM	22	24	32	32	40	40
SW1	17	19	22	22	30	30
Z base (+ stroke)	145	160	168	183	199	214.5
L8 base (+ stroke)	119	130	131	146	153	163
BG	18	18	20	20	19	19
RT - mounting thread	M6	M6	M8	M8	M10	M10
SW2	6	6	8	8	6	6
E - end-cap size	46	54	64	74	94	111
TG - mounting centres	32.5	38	46.5	56.5	72	89
EE - air port	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2
PL	18	17.5	20.5	22	22	26
J3	4	3.5	7	8	11	9
J2	6.5	8	10	8.5	8.5	12.5
L7	2	5.8	2	4	4	5
SW3	2.5	2.5	4	4	4	4

The LB Z and L8 bases are 25 mm longer than the corresponding LH bases. LB 63 mm J3 is 8 mm. These are LB-specific rows cross-checked against the supplied Aignep item chart.

Spring loads and extension force

The spring opposes air-powered extension. It provides the return force when air is exhausted. R = spring load at rest; C = spring load when compressed. Values below are Aignep catalogue loads in newtons (N).

Bore	Load	25 mm	50 mm	75 mm	80 mm	100 mm
32	R - rest	50	41	33	31.5	24.5
32	C - compressed	58	58	58	58	58
40	R - rest	52	43	34	32	25
40	C - compressed	61	61	61	61	61
50	R - rest	92	77	64	60	49
50	C - compressed	110	110	110	110	110
63	R - rest	92	77	64	60	49
63	C - compressed	110	110	110	110	110
80	R - rest	117	98	79	75	59
80	C - compressed	138	138	138	138	138
100	R - rest	117	98	79	75	59
100	C - compressed	138	138	138	138	138

The source spring-load table does not give 40 mm or other intermediate strokes. Do not interpolate these values as verified ratings; ATS must confirm the spring for those builds.

Pneumatic extension reference before spring load

Bore	1 bar	2 bar	4 bar	6 bar	8 bar	10 bar
32	72	144	288	432	576	720
40	110	220	440	660	880	1100
50	175	350	700	1050	1400	1750
63	280	560	1120	1680	2240	2800
80	450	900	1800	2700	3600	4500
100	700	1400	2800	4200	5650	7000

Example, 50 mm bore x 100 mm stroke at 6 bar: the general pneumatic reference is 1,050 N; subtracting the 110 N compressed spring gives a **940 N reference at full extension**. This is not a tested application rating. Account for friction, flow/backpressure and external load.

The smallest spring return load also has to overcome the returning load and resistance. Spring load alone is not a guaranteed usable return-force rating.

Air consumption and ordering

Aignep full-bore extension air reference in normal litres (NL) per 10 mm of stroke. For air-powered extension with spring return, use the extension value once per cycle; the return is not a second air-powered stroke.

Bore	1 bar	2 bar	3 bar	4 bar	5 bar	6 bar	7 bar	8 bar	9 bar	10 bar
32	0.016	0.024	0.032	0.040	0.048	0.056	0.064	0.072	0.080	0.088
40	0.025	0.038	0.050	0.063	0.075	0.088	0.101	0.113	0.126	0.138
50	0.039	0.059	0.079	0.098	0.118	0.137	0.157	0.177	0.196	0.216
63	0.062	0.094	0.125	0.156	0.187	0.218	0.249	0.281	0.312	0.343
80	0.101	0.151	0.201	0.251	0.302	0.352	0.402	0.452	0.503	0.553
100	0.157	0.236	0.314	0.393	0.471	0.550	0.628	0.707	0.785	0.864

Cycle example

For a 50 mm bore and 100 mm stroke at 6 bar: $0.137 \times (100/10) = \mathbf{1.37 \text{ NI per cycle}}$ for the swept powered chamber. Dead volume, fittings, tubing, valve use and losses add consumption.

Ordering your ATS LB cylinder

Select the bore and a common stroke, or enter the required whole-mm stroke within 25-100 mm. Intermediate strokes need spring confirmation. Your cylinder label identifies the physical dimensions: **LB-050-0075** means 50 mm bore x 75 mm stroke.

Choose compatible mountings and sensors separately. Confirm the mounting, rod/port threads, operating load, speed and spring-return requirement. Requests outside the documented range should be referred to ATS.

Workshop manufacture and support

Made in-house in Christchurch. Standard production is usually 3-5 working days. Urgent/same-day requests are subject to workshop capacity; the website shows the applicable urgent charge.

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Sources: supplied Aignep L-series catalogue, July 2026, printed pages 18.67-18.70, 18.73, 18.64 and 18.65; supplied LB diagram and item chart. Dimensions and manufacturer tables are attributed to Aignep. ATS has confirmed PU seals and this verified LB range.