

MD series roundline cylinders

ATS PNEUMATICS | SINGLE ACTING | SPRING EXTEND | ISO 6432



Slim roundline cylinders made in-house at ATS Pneumatics in Christchurch. An internal spring extends the rod; compressed air retracts it. When the powered chamber is exhausted, the spring drives extension.

Specification	ATS MD made-to-order build
Online bore sizes	16, 20 and 25 mm
Online stroke range	10-100 mm, in whole millimetres
Operation	Single acting Spring extend
Working pressure	1-10 bar; application and spring load determine output
Temperature	0 to +80 degrees C; -20 degrees C with dry air
Air supply	Filtered compressed air, lubricated or non-lubricated
Position sensing	Magnetic piston; external sensor mounting adapter required
End cushioning	Elastic bumpers; no adjustable pneumatic cushioning
Construction	AISI 304 stainless barrel; AISI 303 stainless rod; aluminium ends
Seal materials	PU rod/piston seals; NBR O-rings; neoprene end bumpers

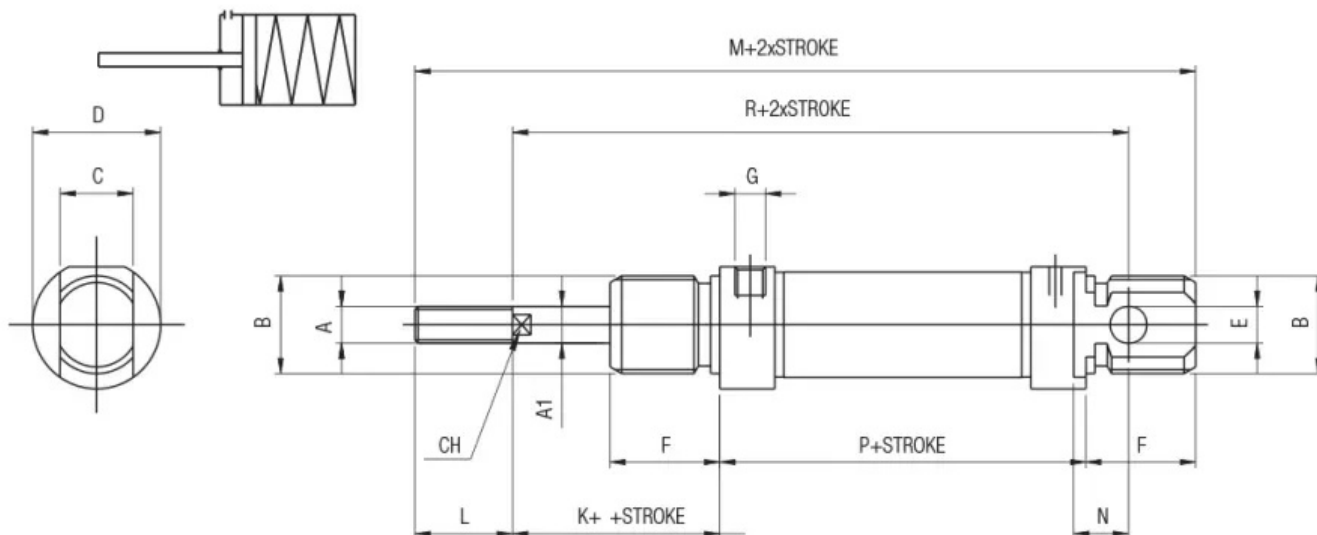
Your finished stroke, built in Christchurch

Every cylinder on this made-to-order product is built in-house, including common lengths. Choose bore, enter exact stroke, select compatible mountings and review the online price. A separate ready-made MF product lists stocked factory cylinders.

ATS confirms the 10-100 mm build range uses the MD drawing formulas. Aignep common MD products are listed at 10, 25, 40 and 50 mm. Longer/custom spring loads must be confirmed for the actual build.

Drawing and bore dimensions

Manufacturer schematic for the bare cylinder. Numeric dimensions are in mm; the drawing does not scale to the selected stroke. MD rod shown spring-extended.



Stroke-dependent measurements

Drawing datum	Calculation	25 mm bore x 75 mm stroke
M + 2 x stroke	M base + twice exact stroke	316 mm
R + 2 x stroke	R base + twice exact stroke	280 mm
P + stroke	P base + exact stroke	169 mm
K + stroke	K base + exact stroke	103 mm

For MF, K remains fixed. For MD, K adds the stroke. M and R describe their labelled datums in the rod position shown; R is not a body-length measurement. Do not substitute the pricing-band number for physical stroke.

Bore-specific dimensions

Base/reference values for the bare cylinder. Add stroke only to the drawing datums explained on the previous page.

Reference	16 mm bore	20 mm bore	25 mm bore
A - rod thread	M6	M8	M10x1.25
A1 - rod diameter	6	8	10
B - mounting thread	M16x1.5	M22x1.5	M22x1.5
C	12	16	16
D	19	27	30
E - rear pin diameter	6	8	8
F	18	20	22
G - air port	M5	G 1/8	G 1/8
K base (+ stroke)	22	24	28
L	16	20	22
M base	134.5	154	166
N	9	12	12
P base	78.5	90	94
R base	107.5	118	130
CH - rod flat	5	7	9

Aignep uses M6 and M8 rod-thread designations in this chart (standard coarse metric threads). Front/rear thread B, rod thread A and air port G are different connection points.

Force and air consumption

Manufacturer pneumatic force references (N)

Bore	Movement	1 bar	2 bar	4 bar	6 bar	8 bar	10 bar
16	Retraction*	16	32	64	96	128	160
20	Retraction*	24	48	96	144	192	240
25	Retraction*	36	72	144	216	288	360

These are Aignep catalogue references, not a guaranteed force in your application. Account for friction, pressure loss, exhaust backpressure, speed and external load. They differ from ideal area x pressure calculations.

*** MD air-powered retraction must overcome the extending spring.** Subtract the spring load at the rod position considered. Spring-driven extension is not an air-pressure force.

Catalogue spring-load references (N)

Bore	Spring condition	10 mm stroke	25 mm stroke	50 mm stroke
16	R - at rest	16.5	13.7	9
16	C - compressed	18.3	18.3	18.3
20	R - at rest	19	15.5	9.5
20	C - compressed	21.5	21.5	21.5
25	R - at rest	27	24	13.5
25	C - compressed	29	29	29

The general MINI spring table is published for 10, 25 and 50 mm only. It does not certify loads for 40 mm, intermediate or ATS 51-100 mm builds. ATS must confirm the selected spring. R/C spring labels are not the R dimensional datum.

Air-use reference at 6 bar (normal litres per 10 mm)

Bore	Air-powered retraction
16	0.012
20	0.018
25	0.029

Multiply by exact stroke / 10 for one cycle, then by cycles/minute. MD consumes compressed air on retraction only. For 25 mm bore x 100 mm stroke at 6 bar: $0.029 \times 10 = \mathbf{0.29 \text{ NI/cycle}}$.

These rounded catalogue values cover swept chamber volume. Tubing, dead volume, valves and leaks add consumption.

Selection, mountings and ordering

Common lengths and custom strokes

Aignep common MD lengths are 10, 25, 40 and 50 mm. ATS makes MD cylinders to whole-mm strokes up to 100 mm, as confirmed for this guide. Additional ATS common buttons are 60, 75, 80 and 100 mm.

A long-stroke cylinder must be assessed for rod buckling, unsupported length, speed and mounting alignment. The online pricing range is not a load or unsupported-stroke rating.

Mountings and position sensors

Select compatible mounting options shown after bore selection. Common MINI arrangements include flange and foot mounts, rear clevis brackets, rod clevises and spherical rod ends. They are additional items. Sensors require the appropriate roundline mounting adapter; confirm sensor type and wiring.

Mounting choices shown online reflect ATS availability; a catalogue accessory does not automatically mean it is stocked. Confirm dimensions, mounting thread B, rod thread A, port G and rear pin diameter E.

Ordering your finished size

The customer-facing dimension label **MD-025-0075** means 25 mm bore x 75 mm physical stroke. Your dimension PDF uses the exact physical stroke you choose.

Manufacture and support

Made in-house in Christchurch. Standard production is usually **3-5 working days**, plus delivery. Urgent or same-day requests are subject to workshop capacity and ATS confirmation. Delivery is available throughout New Zealand.

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Technical sources and scope

Aignep MINI ISO 6432 catalogue supplied by ATS: printed pages 18.7-18.13, 18.20-18.21. MD dimensions cross-checked against Aignep B2B spring-thrust table; ATS confirmed the same formulas for its 10-100 mm builds. This ATS guide covers the 16, 20 and 25 mm made-to-order versions. Other MINI families and small bores are not included.