

**General Description:** The Parker P1A series of pneumatic cylinders are intended for use in a wide range of applications. These cylinders are particularly suitable for lighter duties in the packaging, food and textile industries. Hygienic design, the use of corrosion-resistant materials and initial lubrication with our food-grade grease makes the cylinders suitable for food industry applications.

Proven design and high quality manufacturing throughout ensure long service life and optimum performance.

Mounting dimensions are in accordance with ISO 6432 and CETOP RP52P. This greatly simplifies installation and world-wide interchangeability.

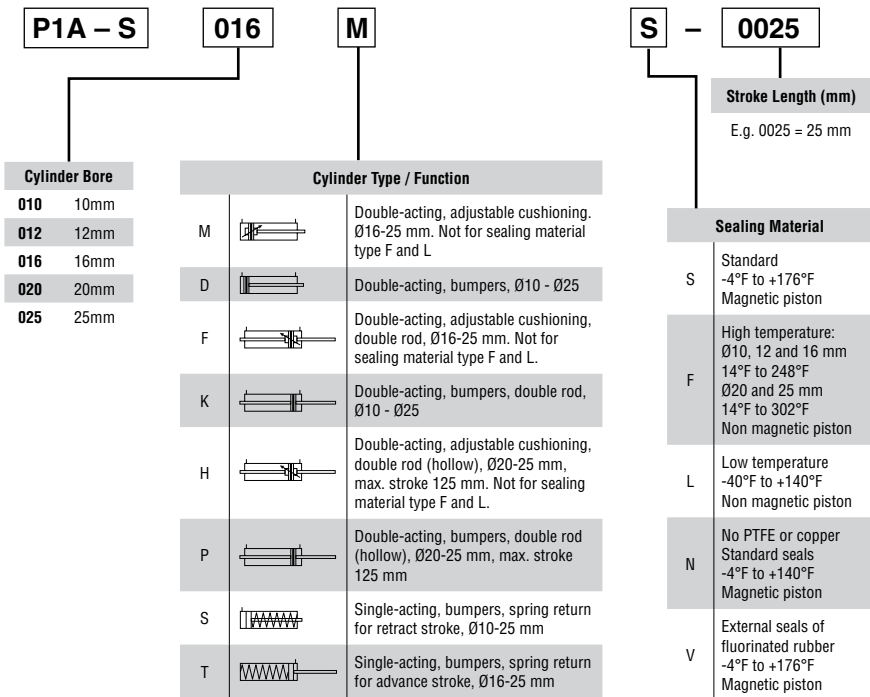
The Mini ISO range is available with bumpers or adjustable pneumatic cushioning. Controlled by simple bleed screws for fine adjustment, the adjustable cushioned cylinders can be operated with higher mass loads and at higher speeds than those with fixed end cushioning bumpers.

The Mini ISO range is also available in an all-stainless version with piston rod, cylinder body and end covers of stainless steel for use in extremely severe environments. Consult the Actuator Division for more information.

A complete range of sensors for proximity sensing is available as accessories: both reed and solid state sensors are available. Either can be supplied with flying leads or cable and multi-pin connector.

**MINI ISO PNEUMATIC CYLINDERS**

**P1A SERIES - HOW TO ORDER**



**MINI ISO PNEUMATIC CYLINDERS**

**P1A SERIES - STROKE LENGTHS**

Cylinder Model	Bore Size	Stroke Length (+ = standard, - = non-standard, blank = N/A)														
		10	15	20	25*	30	40	50*	80*	100*	125*	160*	200*	250*	320*	400*
<b>Double Acting with fixed end-cushioning:</b>																
P1A-S 010 D	10	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-
P1A-S 012 D	12	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-
P1A-S 016 D	16	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-
P1A-S 020 D	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-
P1A-S 025 D	25	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-
<b>Double Acting with adjustable end-cushioning:</b>																
P1A-S 016 M	16				+	+	+	+	+	+	+	+	+	+	+	+
P1A-S 020 M	20				+	+	+	+	+	+	+	+	+	+	+	+
P1A-S 025 M	25				+	+	+	+	+	+	+	+	+	+	+	+
<b>Single Acting:</b>																
P1A-S 010 SS	10	+	+	-	+	-	+	+	+							
P1A-S 012 SS	12	+	+	-	+	-	+	+	+							
P1A-S 016 SS(TS)	16	+	+	-	+	-	+	+	+	+						
P1A-S 020 SS(TS)	20	+	+	-	+	-	+	+	+							
P1A-S 025 SS(TS)	25	+	+	-	+	-	+	+	+							

\*Standard stroke lengths in mm according to ISO 4393

\*\* Not for the TS version

Note: For sensor specifications and part numbers, please refer to the Electronic Sensors section.

**MINI ISO PNEUMATIC CYLINDERS**

**P1A SERIES - STANDARD SPECIFICATIONS**

Working Pressure	max	145 PSI
Working Temperature	max	176°F
	min	4°F
High-Temperature Version	max	Ø20 and 25 mm - 302°F Ø10, 12 and 16 mm - 248°F
	min	14°F
Low-Temperature Version	max	140°F
	min	-40°F

Prelubricated, further lubrication is not normally necessary.

If additional lubrication is introduced it must be continued.

## MINI ISO PNEUMATIC CYLINDERS

### P1A SERIES - MATERIAL SPECIFICATION

<b>Piston rod:</b>	Stainless steel, DIN X 10 CrNiS 18 9
<b>Piston rod seal:</b>	Fluorocarbon rubber FPM
<b>Piston rod bearing:</b>	Multilayer PTFE/steel
<b>End covers:</b>	Anodized aluminium
<b>O-ring, internal:</b>	Nitrile rubber, NBR
<b>Cylinder barrel:</b>	Stainless steel, DIN X 5 CrNi 18 10
<b>Piston, complete:</b>	Nitrile rubber, NBR/steel
<b>Magnet holder:</b>	Thermoplastic elastomer
<b>Magnet:</b>	Plastic-coated magnetic material
<b>Return spring:</b>	Surface-treated steel
<b>Cushioning screw:</b>	Stainless steel, DIN X 10 CrNiS 18 9

Cylinders are supplied complete with nose mounting and piston rod nuts.

Cylinders with double piston rods are supplied with two piston rod nuts

### Variants Mini ISO:

#### Low-temperature version, type L:

<b>Piston rod seal:</b>	Nitrile rubber, NBR
<b>Piston complete:</b>	Nitrile rubber, NBR/steel

#### High-temperature version, type F:

<b>Piston rod seal:</b>	Fluorocarbon rubber, FPM
<b>Piston complete, Ø10-Ø16:</b>	HNBR/steel
<b>Piston complete, Ø20-Ø25:</b>	FPM/steel

#### PTFE and copper free cylinders, type N:

<b>Piston rod bearing:</b>	PA plastic
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#### Cylinders with outer sealings in fluorocarbon, type V:

<b>Piston rod seal/</b>	Fluorocarbon rubber, FPM
<b>Scraper ring:</b>	

**Note:** Spare part = new cylinder

## MINI ISO PNEUMATIC CYLINDERS

### P1A SERIES - QUICK REFERENCE

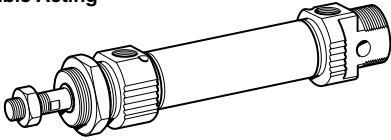
Model #	Cylinder		Piston Rod		Thread	Total Weight at 0mm Stroke (lbs)	Additional Weight per 10mm Stroke (lbs)	Air Consumption	Port Size
	Bore (mm)	Area (cm <sup>2</sup> )	Dia. (mm)	Area (cm <sup>2</sup> )					
<b>Double Acting, cushioned stroke</b>									
P1A-S 010 D	10	0.78	4	0.13	M4	0.09	0.007	0.0004 <sup>1)</sup>	M5
P1A-S 012 D	12	1.13	6	0.28	M6	0.15	0.009	0.0005 <sup>1)</sup>	M5
P1A-S 016 D	16	2.01	6	0.28	M6	0.20	0.012	0.0009 <sup>1)</sup>	M5
P1A-S 020 D	20	3.14	8	0.50	M8	0.40	0.015	0.0010 <sup>1)</sup>	G1/8
P1A-S 025 D	25	4.91	10	0.78	M10x1.25	0.89	0.025	0.0023 <sup>1)</sup>	G1/8
<b>Double Acting, adjustable cushioning</b>									
P1A-S 016 M	16	2.01	6	0.28	M6	0.20	0.012	0.0009 <sup>1)</sup>	M5
P1A-S 020 M	20	3.14	8	0.50	M8	0.40	0.015	0.0010 <sup>1)</sup>	G1/8
P1A-S 025 M	25	4.91	10	0.78	M10x1.25	0.89	0.025	0.0023 <sup>1)</sup>	G1/8
<b>Single Acting</b>									
P1A-S 010 SS	10	0.78	4	0.13	M4	0.09	0.007	0.0002 <sup>1)</sup>	M5
P1A-S 012 SS	12	1.13	6	0.28	M6	0.18	0.009	0.0003 <sup>1)</sup>	M5
P1A-S 016 SS(TS)	16	2.01	6	0.28	M6	0.22	0.012	0.0005 <sup>1)</sup>	M5
P1A-S 020 SS(TS)	20	3.14	8	0.50	M8	0.40	0.015	0.0008 <sup>1)</sup>	G1/8
P1A-S 025 SS(TS)	25	4.91	10	0.78	M10x1.25	0.58	0.025	0.0013 <sup>1)</sup>	G1/8

1) Free air consumption per 10 mm stroke length for a double stroke at 87 PSI

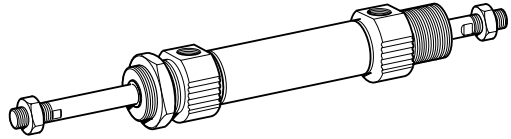
**MINI ISO PNEUMATIC CYLINDERS**

**P1A SERIES - CYLINDER FORCES**

**Double Acting**



**Double Acting, Double Rod**



**Double Acting**

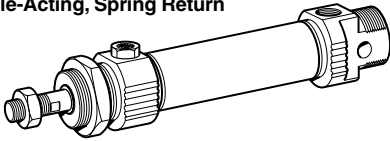
Model No.	Bore Size (mm)	Theoretical Piston Force (lbs) at 87 PSI	
		Extension	Retraction
P1A-S 010 D	10	10.57	8.76
P1A-S 012 D	12	15.07	11.25
P1A-S 016 D	16	26.98	23.15
P1A-S 020 D	20	42.27	35.52
P1A-S 025 D	25	66.10	55.53
P1A-S 016 M	16	26.98	23.16
P1A-S 020 M	20	42.27	35.52
P1A-S 025 M	25	66.10	55.53

Indicated cylinder forces are theoretical and should be reduced according to the working conditions.

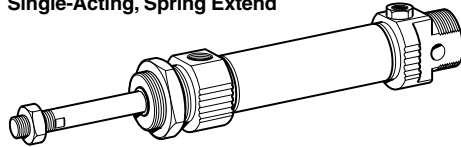
**MINI ISO PNEUMATIC CYLINDERS**

**P1A SERIES - CYLINDER FORCES**

Single-Acting, Spring Return



Single-Acting, Spring Extend



**Single Acting**

Model No.	Stroke	Theoretical Piston Force (lbs) at 87 PSI			
		Spring Retraction (lbs max) (lbs. min)		Spring Extension (lbs. max) (lbs. min)	
P1A-S 010 SS	10	8.5	8.1	2.4	2.0
	12	8.5	8.1	2.4	2.0
	25	8.7	8.1	2.4	2.0
	40	8.5	7.6	2.9	2.0
	50	8.7	7.6	2.9	1.7
	80	8.7	7.6	2.9	1.7
P1A-S 012 SS	10	11.9	11.4	3.6	3.1
	15	11.9	11.4	3.6	3.1
	25	12.3	11.4	3.6	2.7
	40	11.9	10.8	4.2	3.3
	50	11.9	10.8	4.2	3.1
	80	12.3	10.8	4.2	2.7
P1A-S 016 SS(TS)	10	22.0 (19.1)	22.2 (18.8)	4.7 (4.2)	4.0 (4.0)
	15	23.1 (19.3)	22.2 (18.8)	4.7 (4.2)	3.8 (3.8)
	25	23.8 (19.8)	22.2 (18.8)	4.7 (4.2)	3.3 (3.3)
	40	23.8 (20.3)	21.3 (18.8)	5.6 (4.2)	3.1 (3.1)
	50	24.2 (20.4)	21.3 (18.8)	5.6 (4.2)	2.7 (2.7)
	80	24.0 (21.3)	21.3 (18.8)	5.6 (4.2)	2.9 (2.9)
P1A-S 020 SS(TS)	10	36.6 (29.6)	36.1 (29.2)	6.1 (6.3)	5.6 (5.8)
	15	36.8 (29.8)	36.1 (29.2)	6.1 (6.3)	5.4 (5.6)
	25	37.5 (30.3)	36.1 (29.2)	6.1 (6.3)	4.7 (5.1)
	40	37.3 (31.0)	35.7 (29.2)	6.5 (6.3)	4.9 (4.9)
	50	37.7 (31.4)	35.7 (29.2)	6.5 (6.3)	4.5 (4.5)
	80	38.2 (31.2)	36.1 (24.2)	6.1 (11.2)	4.0 (4.2)
P1A-S 025 SS(TS)	10	57.5 (46.1)	56.9 (45.6)	9.2 (9.9)	8.5 (9.4)
	15	58.0 (46.5)	56.9 (45.6)	9.2 (9.9)	8.1 (9.0)
	25	58.9 (47.2)	56.9 (45.6)	9.2 (9.9)	7.2 (8.3)
	40	58.7 (48.1)	56.2 (45.6)	9.9 (9.9)	7.4 (7.4)
	50	59.4 (48.8)	56.2 (45.6)	9.9 (9.9)	6.7 (6.7)
	80	59.4 (50.1)	56.4 (46.3)	9.6 (9.2)	6.7 (5.4)