Proposal for Next Generation Products

Future Pneumatics

Air Saving

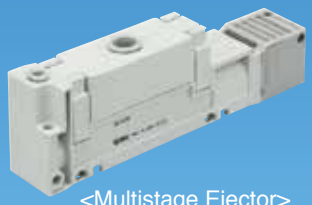
Air consumption:

35% reduction

<Pulse Valve>

Air consumption:

10% reduction



<Multistage Ejector>

Space Saving

Occupied volume:

49% reduction

<5-Port Solenoid Valve: Plug-in Type>

Height:

43% reduction

<Compact Speed Controller>

Lightweight

Compact design, Applicable for robots

Weight:

57% reduction

<Square Compact Air Cylinder>

<Aluminum Rod Cylinder>

Wireless System

Usable even in welding environments

Wireless Base Unit

Wireless Remote Unit

INDEX

Space Saving Lightweight

Square Air Cylinder

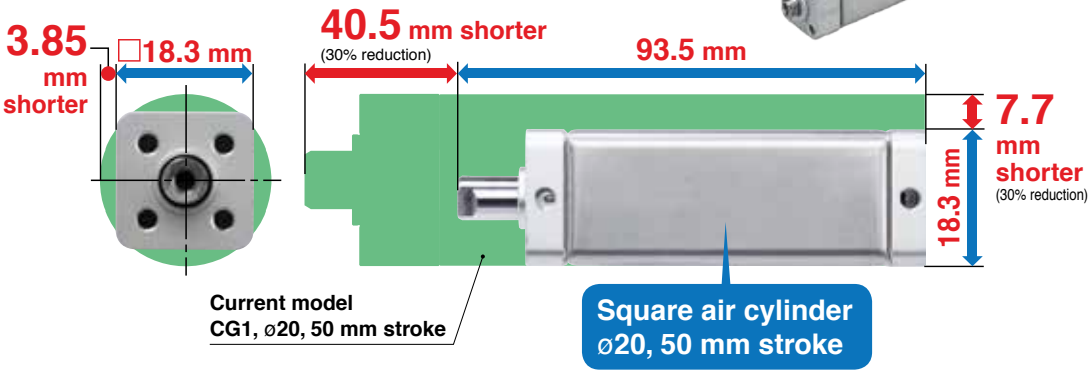
Equivalent: ø12, ø16, ø20, ø25, ø32, ø40

1 mm to 0.0393701 inches
1 MPa to 145.038 psi

Lightweight and compact due to its square piston shape

Weight
57% reduction
150 g ➡ 64 g

Overall length
30% reduction
134 mm ➡ 93.5 mm



Mounting Variations

Female thread on both covers	Male thread on rod cover	Male thread on both covers
		
Free mount		
		
Axial foot (outward)	Axial foot (inward)	Head side flange
		
Rod side flange	Clevis	
		

Specifications

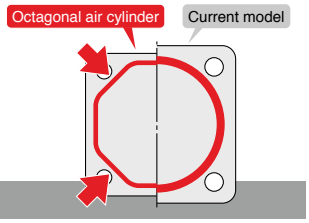
Bore size [mm]	ø12 equiv.	ø16 equiv.	ø20 equiv.	ø25 equiv.	ø32 equiv.	ø40 equiv.
Output at 0.5 MPa [N]	57	94	142	252	388	627
Max. operating pressure	0.7 MPa					
Piston speed	50 to 500 mm/s					
Cushion	Rubber bumper					
Non-rotating accuracy	±6.1°	±5.5°	±4.5°	±2.9°	±2.3°	±2.1°

Space Saving Lightweight

Octagonal Air Cylinder

1 mm to 0.0393701 inches
1 MPa to 145.038 psi

Lightweight and compact
due to its octagonal piston shape

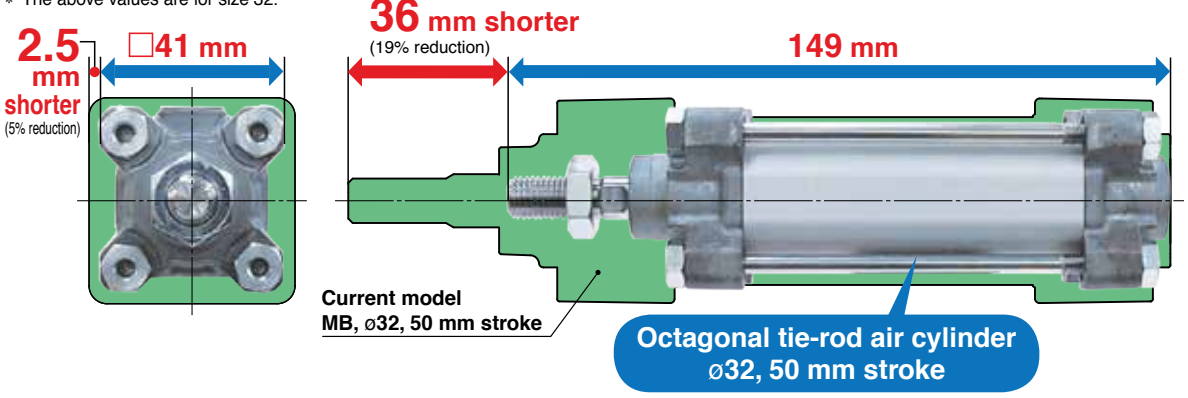


Octagonal Tie-rod Air Cylinder
Bore size: ø32, ø40, ø50, ø63

Weight
36% reduction
480 g ➡ 306 g

Overall length
19% reduction
185 mm ➡ 149 mm

* The above values are for size 32.

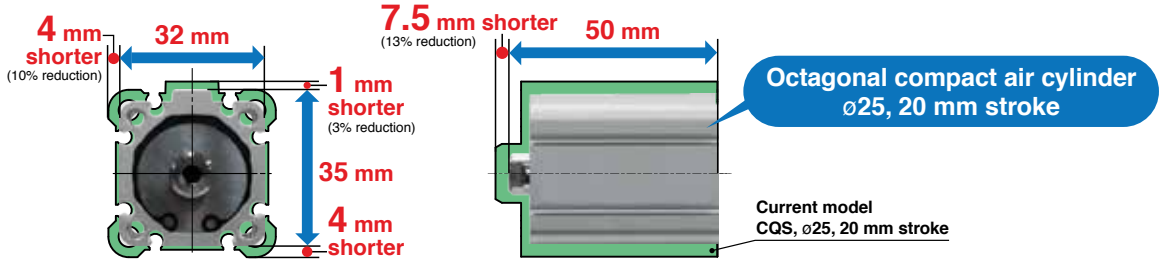


Octagonal Compact Air Cylinder
Bore size: ø20, ø25, ø32, ø40

Weight
49% reduction
179 g ➡ 92 g

Overall length
13% reduction
57.5 mm ➡ 50 mm

* The above values are for size 25.



Lightweight

Aluminum Rod Cylinder

1 mm to 0.0393701 inches
1 MPa to 145.038 psi

Weight

39% reduction

2793 g ➡ 1704 g

MGP ø50, 25 mm stroke

Special coating

- Reduces sliding resistance
- Increases surface hardness

Aluminum rod
+ Special coating

CQ2 Series

Bore size: ø25, ø32, ø40, ø50, ø63

Weight Max. **20% lighter**

241 g ➡ 193 g

(Compared with the CQ2 series, ø32, 20 mm stroke)

[g]

Bore size [mm]	Current model (Steel rod)	Aluminum rod cylinder
ø25-20 mm stroke	180	159 (12% reduction)
ø32-20 mm stroke	241	193 (20% reduction)
ø40-20 mm stroke	333	278 (17% reduction)
ø50-20 mm stroke	521	434 (17% reduction)
ø63-20 mm stroke	703	617 (12% reduction)

CM2 Series

Bore size: ø20, ø25, ø32, ø40

Weight Max. **20% lighter**

360 g ➡ 289 g

(Compared with the CM2 series, ø32, 50 mm stroke)

[g]

Bore size [mm]	Current model (Steel rod)	Aluminum rod cylinder
ø20-50 mm stroke	180	149 (17% reduction)
ø25-50 mm stroke	270	220 (19% reduction)
ø32-50 mm stroke	360	289 (20% reduction)
ø40-50 mm stroke	690	574 (17% reduction)

MB Series

Bore size: ø32, ø40, ø50, ø63

Weight Max. **24% lighter**

1560 g ➡ 1188 g

(Compared with the MB series, ø50, 100 mm stroke)

[g]

Bore size [mm]	Current model (Steel rod)	Aluminum rod cylinder
ø32-100 mm stroke	660	543 (18% reduction)
ø40-100 mm stroke	910	703 (23% reduction)
ø50-100 mm stroke	1560	1188 (24% reduction)
ø63-100 mm stroke	1830	1457 (20% reduction)

MGP Series

Bore size: ø25, ø32, ø40, ø50

Weight **39% lighter**

2793 g ➡ 1704 g

(Compared with the MGP series, ø50, 25 mm stroke)

[g]

Bore size [mm]	Current model (Steel rod)	Aluminum rod cylinder
ø25-20 mm stroke	844	595 (30% reduction)
ø32-25 mm stroke	1410	912 (35% reduction)
ø40-25 mm stroke	1641	1120 (32% reduction)
ø50-25 mm stroke	2793	1704 (39% reduction)

Space Saving

Solid State Auto Switch (Short Type)

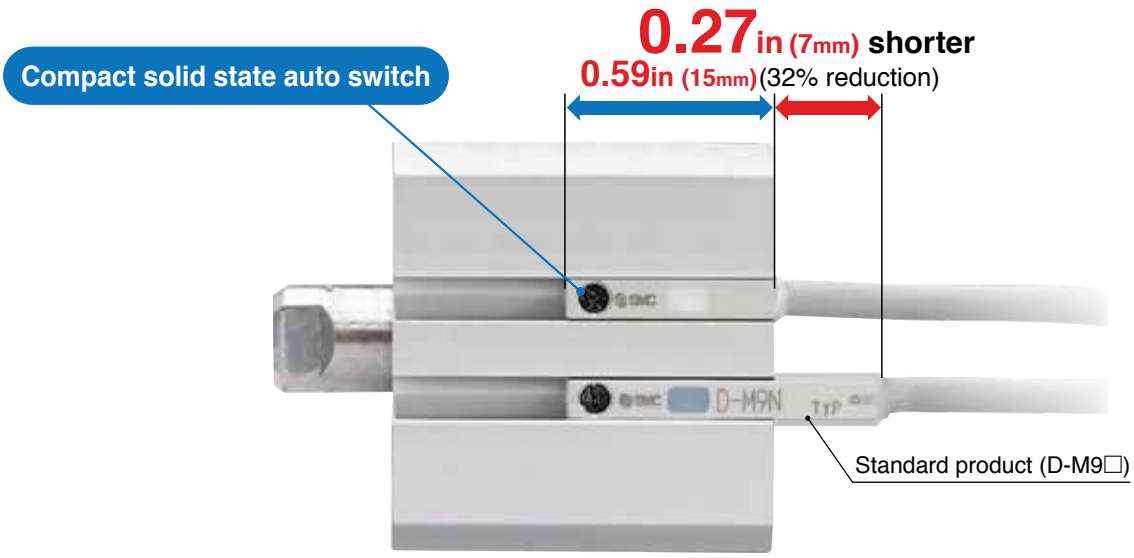
Overall length

32% reduction

0.87in ➡ **0.59in**

(22mm ➡ **15 mm**)

Protrusion of auto switch from the actuator end surface reduced

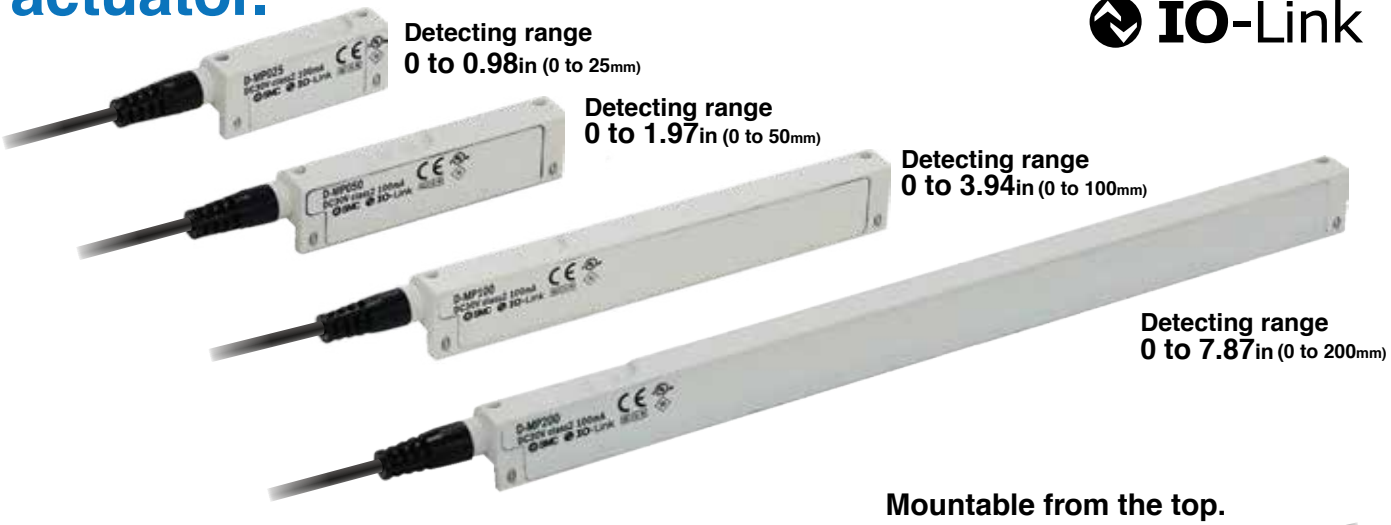


Position Detection

Actuator Position Sensor

Detects the stroke position of the actuator.

IO-Link



Detecting range
0 to 0.98in (0 to 25mm)

Detecting range
0 to 1.97in (0 to 50mm)

Detecting range
0 to 3.94in (0 to 100mm)

Detecting range
0 to 7.87in (0 to 200mm)

- **Resolution: 0.00197in (0.05mm)**
- **Repeatability: 0.00394in (0.1mm)**
  (When the non-rotating guide cylinder is used.)
- **Direct mounting is possible.**
- **Direct wiring to input unit without amplifier**

Mountable from the top.

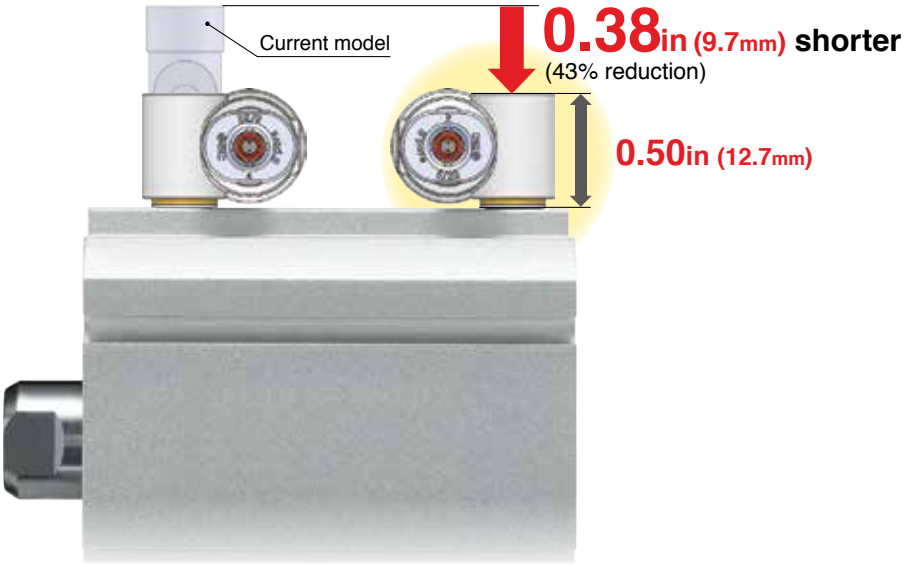
Specifications

Analog output	Voltage output (0 to 10 V), Current output (4 to 20 mA)
Switch output	PNP output, NPN output
IO-Link	Version V1.1

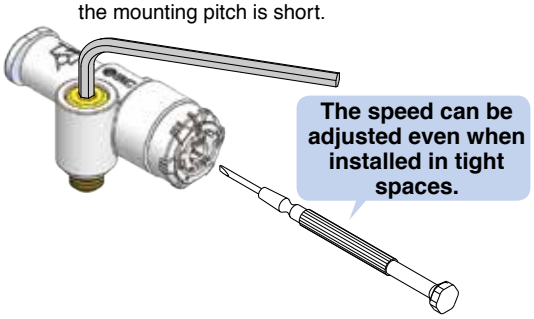
Space Saving
Compact Speed Controller

Height

43% reduction
0.87in ➡ **0.5in**
(22mm ➡ **12.7mm**)

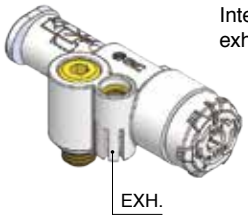


Mounting is easy even when the mounting pitch is short.

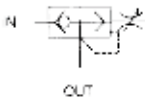


Compact Speed Exhaust Controller JASV Series

Integrated quick exhaust valve and exhaust throttle valve



Symbol



Series Variations

Model	Port size	Applicable tubing O.D.					
		Metric size (R, G)			Inch size (UNF, NPT)		
		3.2	4	6	1/8"	5/32"	1/4"
 **JAS Series** **JASV Series**	M3 x 0.5	●	●	–	–	–	–
	M5 x 0.8	●	●	●	–	–	–
	10-32UNF	–	–	–	●	●	–
	1/8	–	●	●	–	●	●

Space Saving Lightweight

Compact Rotary Actuator (Vane Type)

Size: 10, 15, 20, 30, 40

1 mm to 0.0393701 inches
1 g to 0.035274 oz

Weight

38% reduction

349 g ➡ 216 g

For size 30

Overall length

41% reduction

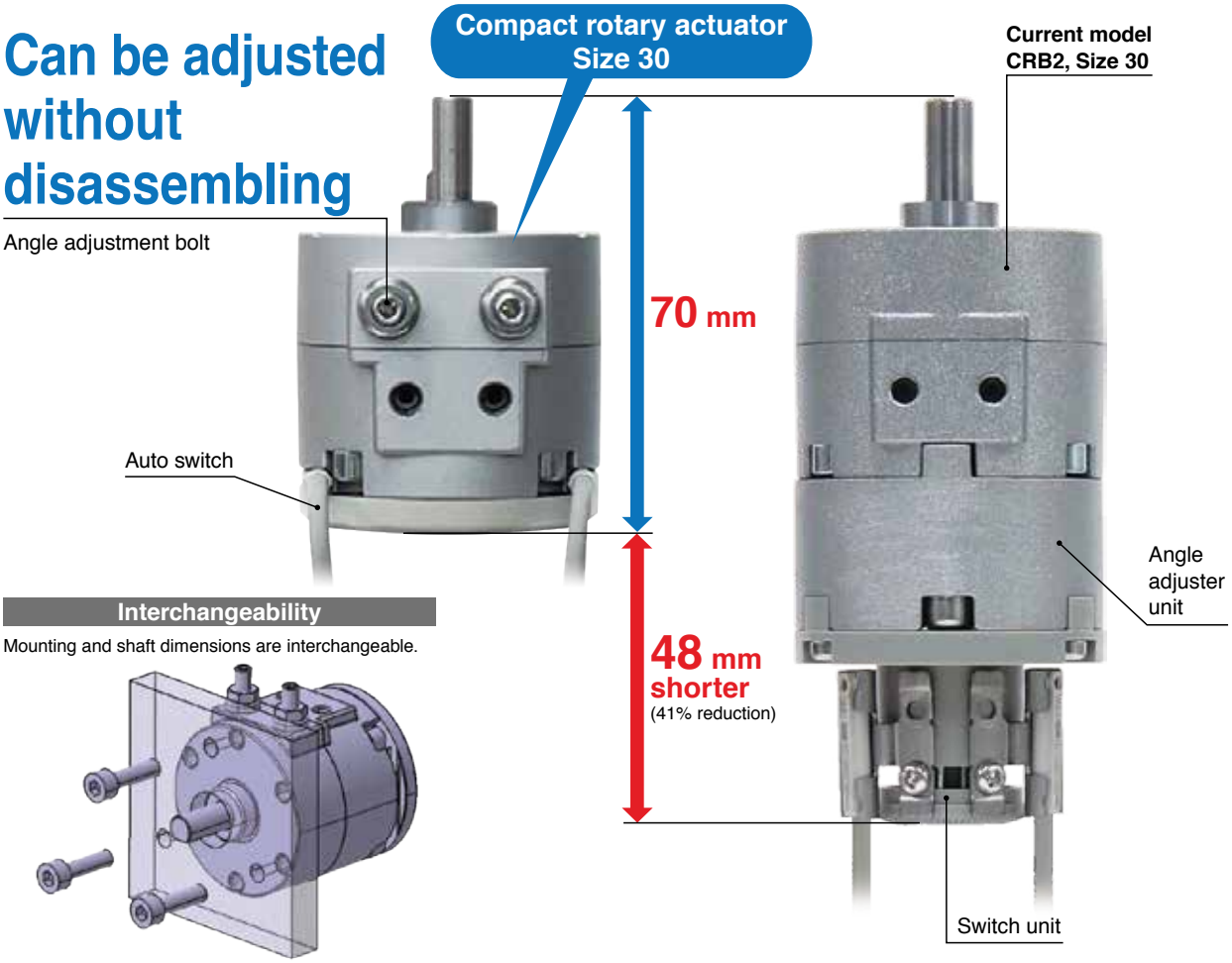
118 mm ➡ 70 mm

For size 30

Features a compact body with a built-in angle adjuster unit and auto switch unit

(Size 20, 30, 40)

Can be adjusted without disassembling



Interchangeability

Mounting and shaft dimensions are interchangeable.

Space Saving Lightweight

Compact Rotary Actuator (Rack & Pinion Type)

Size: 10, 15, 20, 30, 40

1 mm to 0.0393701 inches
1 g to 0.035274 oz

Weight

29% reduction

700 g ➡ **500 g**

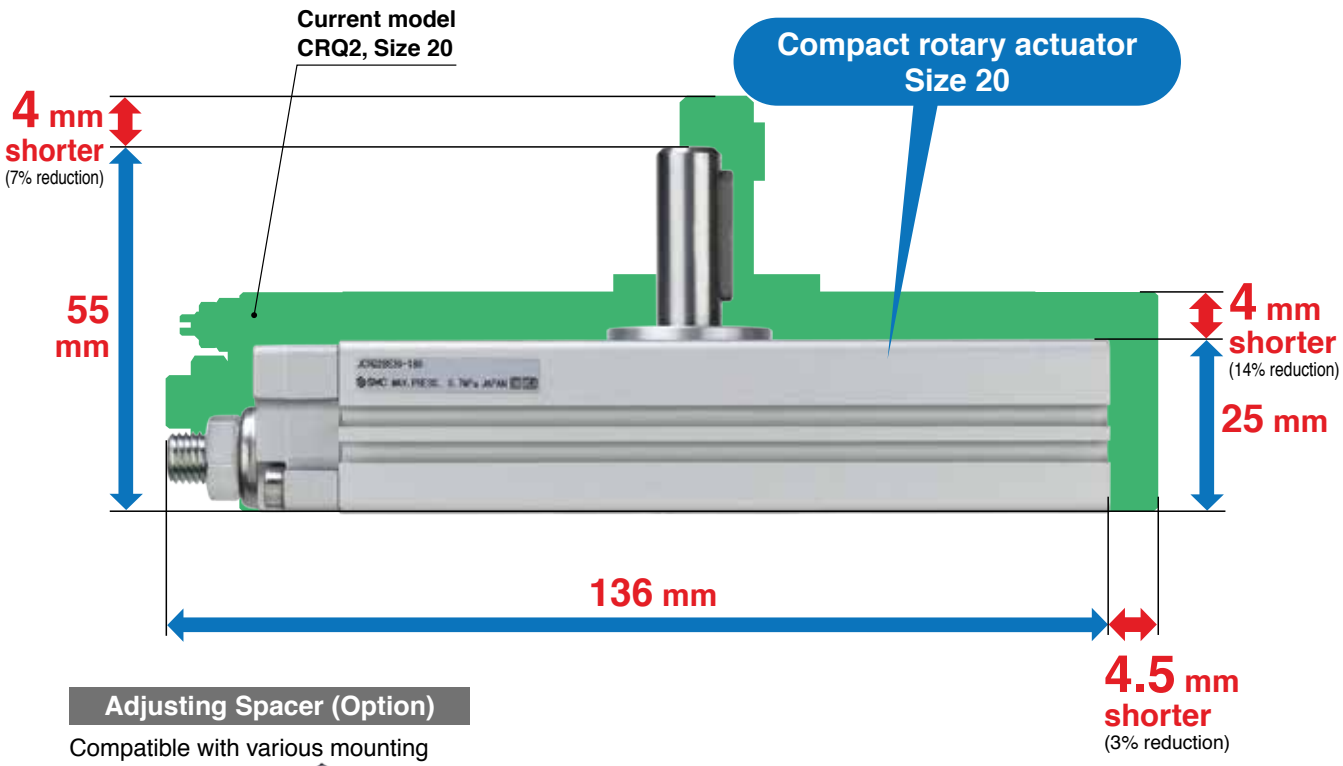
For size 20

Height

7% reduction

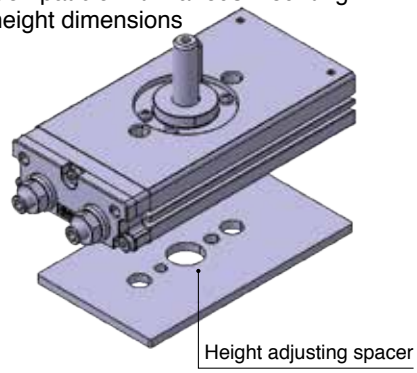
59 mm ➡ **55 mm**

For size 20



Adjusting Spacer (Option)

Compatible with various mounting height dimensions



Space Saving Lightweight

Compact Rotary Table (Rack & Pinion Type)

Size: 10, 20, 30, 40

1 mm to 0.0393701 inches
1 g to 0.035274 oz

Weight

32% reduction

940 g ➡ **640 g**

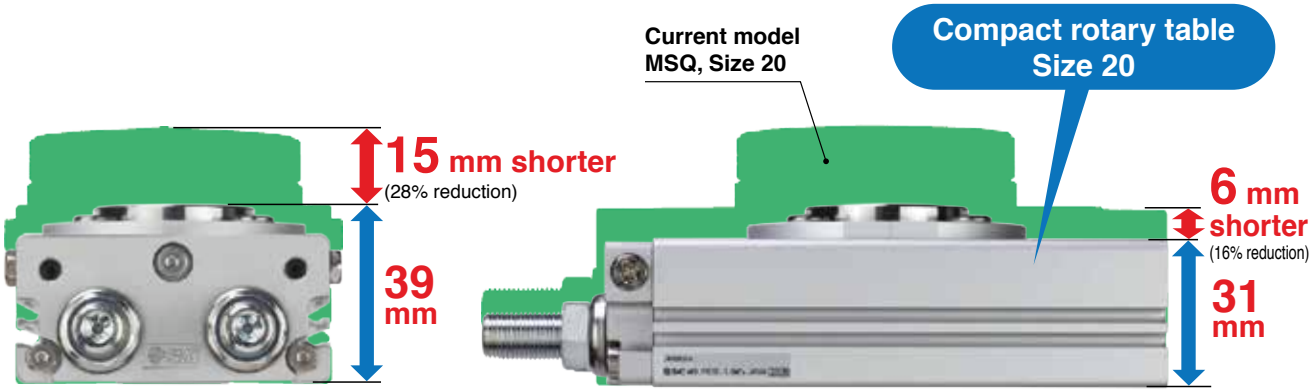
For size 20

Height

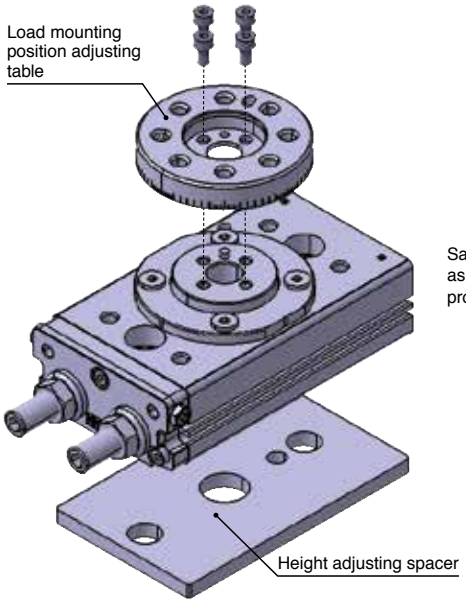
28% reduction

54 mm ➡ **39 mm**

For size 20

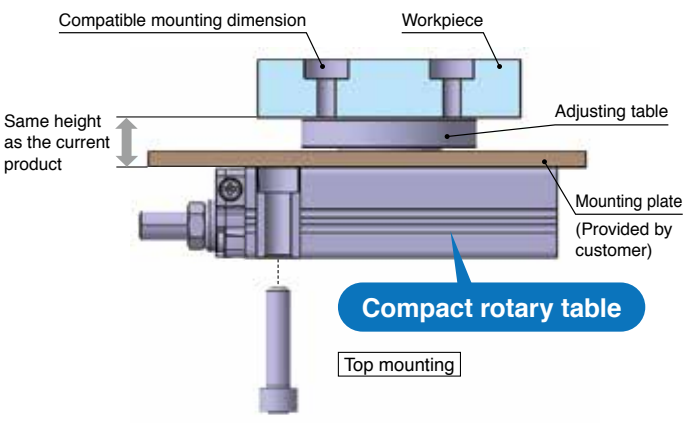


Adjusting Table/Spacer (Option)



Interchangeability

- Workpiece mounting dimensions
- Height between body and table face



Air Saving | Space Saving | Lightweight

Compact Air Gripper

ø8, ø12, ø16, ø20

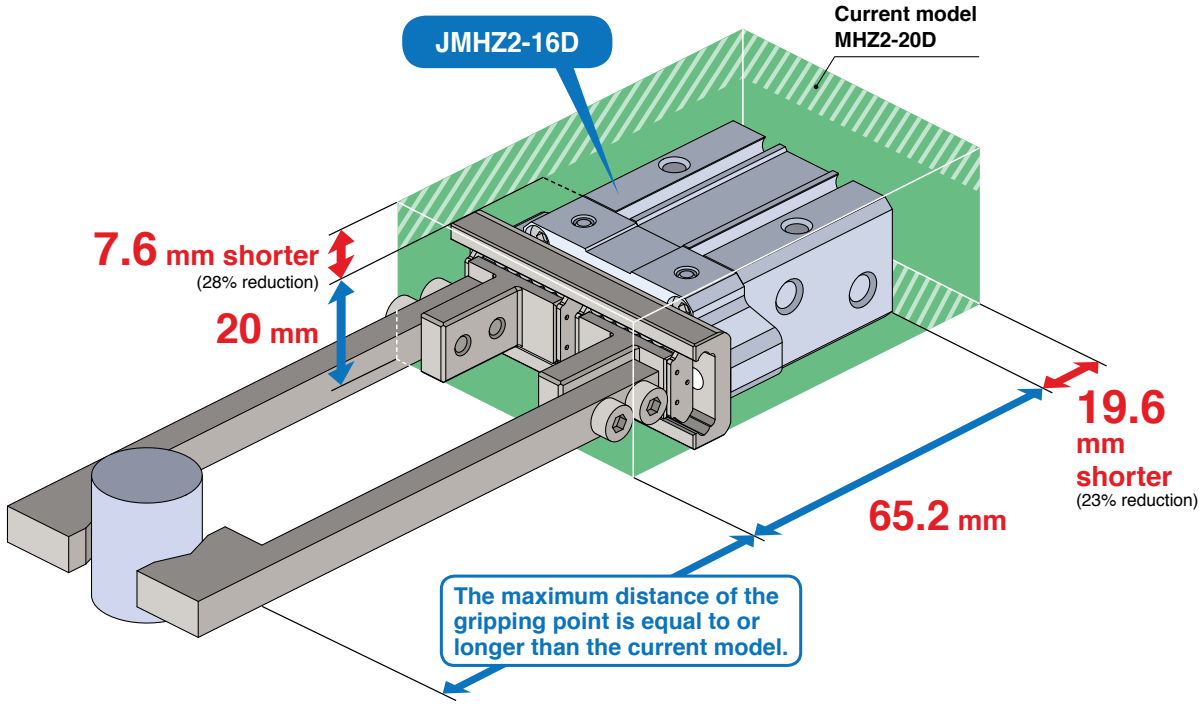
1 mm to 0.0393701 inches
1 g to 0.035274 oz

Weight
46% reduction
235 g ➡ 127 g

Height
28% reduction
27.6 mm ➡ 20 mm

Overall length
23% reduction
84.8 mm ➡ 65.2 mm

Thanks to downsizing (Size 20 ➡ 16),
Air saving,
Compact, Lightweight



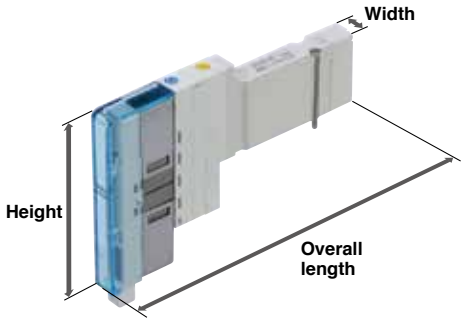
Lightweight Space Saving

5-Port Solenoid Valve (Plug-in Type)

1 mm to 0.0393701 inches
1 g to 0.035274 oz
1 kg to 35.274 oz
1 cm³ to 0.033814 fl oz

Weight
64% reduction
67 g ➡ 24 g
(JSY1000)

Occupied volume
51% reduction
47 cm³ ➡ 23 cm³
(JSY1000)



Single Unit

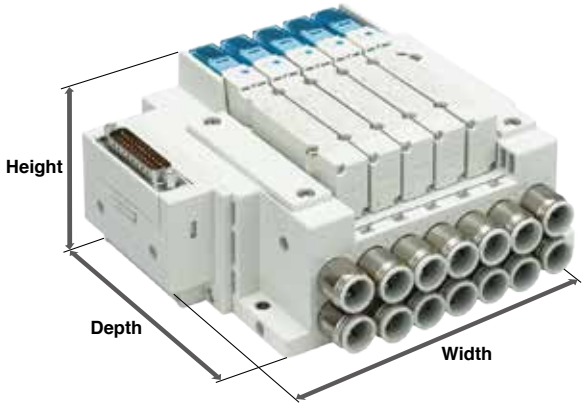
	Series	Space saving				Lightweight	Cv factor	Sonic conductance C [dm³/(s·bar)]
		Width [mm]	Overall length [mm]	Height [mm]	Volume [cm³]	Weight [g]		
No.1	**JSY1000**	**6.4**	**74**	**47.7**	**23** 51% reduction	**24** 64% reduction	**0.26**	**1.0**
	VQ1000 (Current model)	10	86	54.4	47	67	0.26	1.0
No.2	**JSY3000**	**10**	**92**	**56.6**	**52** 48% reduction	**54** 46% reduction	**0.7**	**2.7**
	VQ2000 (Current model)	15.5	114	56.6	100	100	0.7	2.7
No.3	**JSY5000**	**15**	**116**	**56.6**	**98** 41% reduction	**91** 60% reduction	**1.5**	**6.6**
	VQ4000 (Current model)	24.6	140	47.9	165	230	1.5	6.6

Flow rate 2.7 times

Flow rate 2.1 times

Weight
59% reduction
3.7 kg ➡ 1.5 kg
(JSY5000)

Occupied volume
49% reduction
3180 cm³ ➡ 1610 cm³
(JSY5000)



5-Station Manifold

	Series	Space saving				Lightweight	Cv factor	Sonic conductance C [dm³/(s·bar)]
		Width [mm]	Depth [mm]	Height [mm]	Volume [cm³]	Weight [g]		
No.1	**JSY1000**	**109**	**78**	**60**	**510** 26% reduction	**460** 29% reduction	**0.26**	**1.0**
	VQ1000 (Current model)	115	94	64	690	650	0.26	1.0
No.2	**JSY3000**	**128**	**98**	**66**	**830** 39% reduction	**770** 32% reduction	**0.7**	**2.7**
	VQ2000 (Current model)	153	120	74	1360	1140	0.7	2.7
No.3	**JSY5000**	**171**	**129**	**73**	**1610** 49% reduction	**1500** 59% reduction	**1.5**	**6.6**
	VQ4000 (Current model)	201	163	97	3180	3700	1.5	6.6

Flow rate 2.7 times

Flow rate 2.1 times

Weight includes the valves (for 5 stations).

Lightweight Space Saving

Compact Manifold (Built-in Silencer)

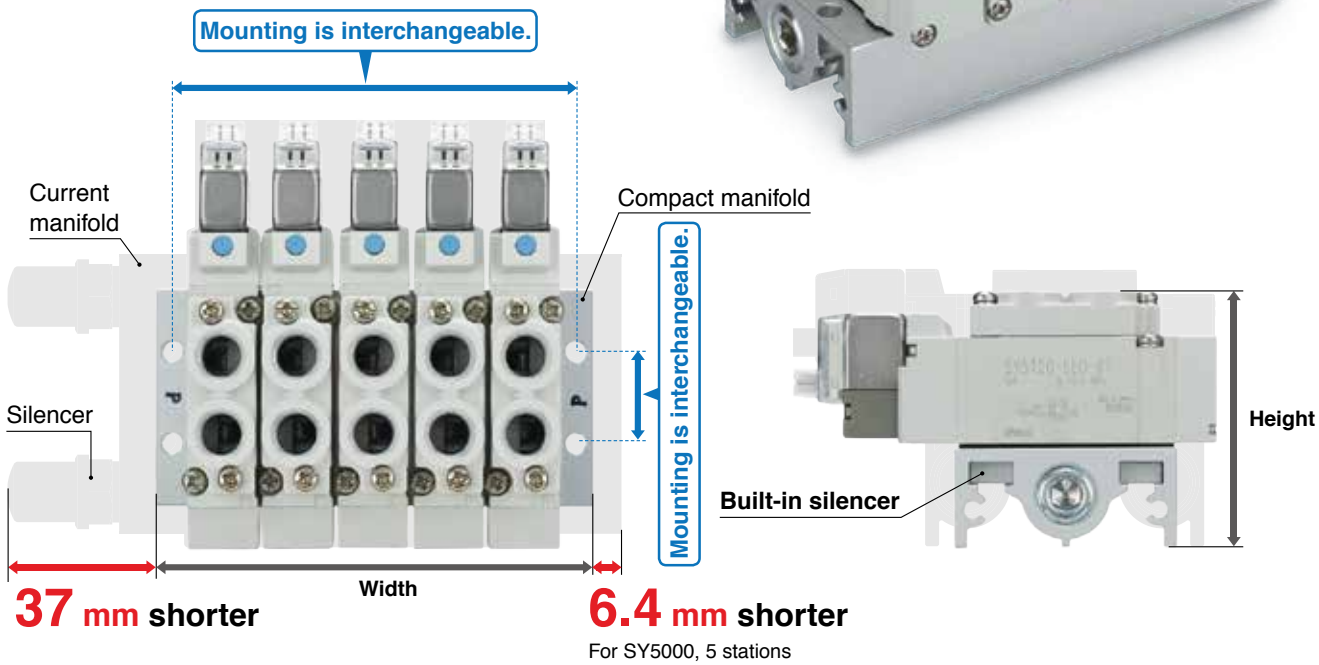
1 mm to 0.0393701 inches

Weight
21% reduction
604 g ➡ 477 g

Occupied volume
34% reduction
675 mm³ ➡ 443 mm³

Height
9% reduction
59.5 mm ➡ 54.2 mm

* SY5000, 5 stations, With 2 silencers



37 mm shorter

6.4 mm shorter
For SY5000, 5 stations

Not affected by back pressure due to its individual exhaust manifold

Wireless System

Applicable to places with a lot of electrical noise
(Usable even in welding environments)

Noise resistance

Uses the 2.4 GHz ISM frequency band
Frequency hops every 5 ms

High-speed connection

From power supply ON to start of communication: **Min. 250 ms**∗1

∗1 For wireless remote

Communication response

Signal response time: **5 ms**

Communication cables not required

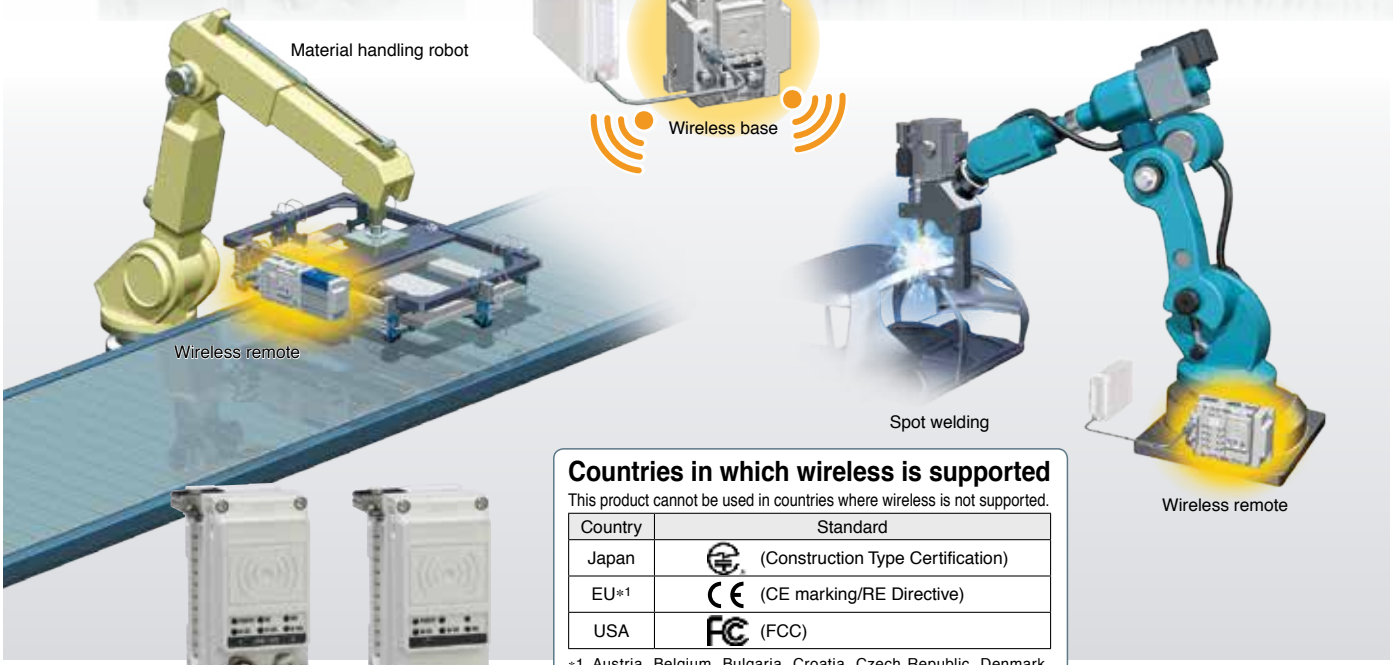
Reduced wiring work, space, and cost
Minimized disconnection risk

Number of I/O points

Max. 1280 inputs/1280 outputs
(Registration and communication of up to 127 remote units is possible.)

Compatible protocol

EtherNet/IP™



Wireless base unit　Wireless remote unit

Countries in which wireless is supported

This product cannot be used in countries where wireless is not supported.

Country	Standard
Japan	(Construction Type Certification)
EU∗1	(CE marking/RE Directive)
USA	(FCC)

∗1 Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, U.K., Turkey

Space Saving Lightweight

Direct Operated 2-Port Valve

＊ JSX22 series

Energy saving

Power consumption: 14% reduction
(Compared to the current model)

Coil force: 10% increase
(Compared to the current model)

A new solenoid has been developed in pursuit of optimal magnetic efficiency.

Long service life

Life: 10 million cycles or more

AC full wave rectified coils prevent buzzing phenomenon.
Now with a longer service life.

High corrosion resistance

Stainless steel body is available as standard.

Space saving

Valve height: 13% reduction
(Compared to the current model)

A new solenoid with a more compact body.

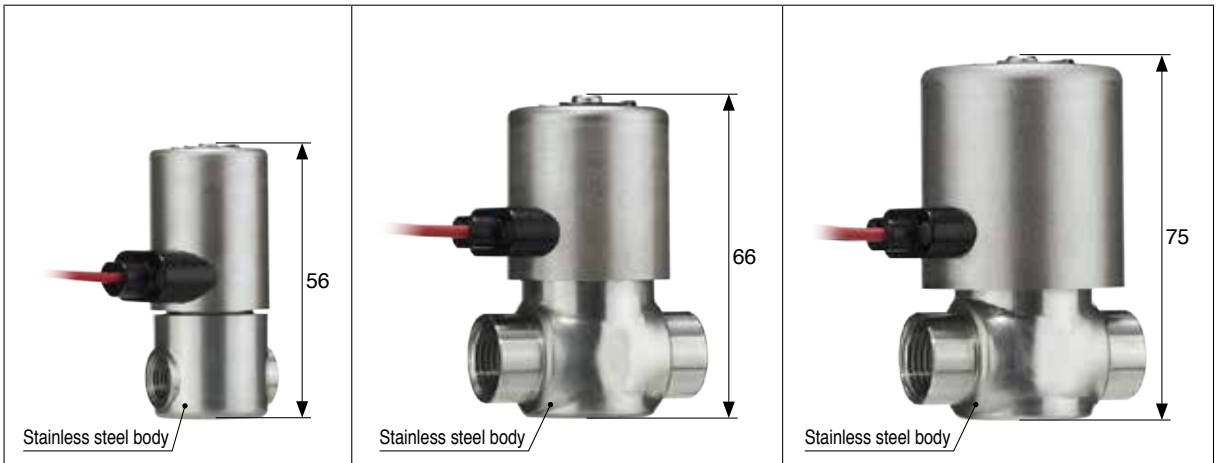
Lightweight, Large flow rate

Weight: 17% reduction
(Compared to the current model)

The thin and lightweight body made by a unique stainless steel press manufacturing method ensures strength equivalent to or greater than current brass products.

Flow rate: 10% increase
(Compared to the current model)

A larger flow rate can now be achieved through the optimization of the orifice diameter and valve stroke.



Series	JSX21	JSX22	JSX23
Power consumption	3.3 W	6 W	9 W
Weight	5.99657 oz (170g)	13.4041 oz (380g)	16.9315 oz (480g)

- **Coil rotation structure**
- **Electrical entry**
  Grommet, DIN terminal, Conduit
- **Voltage variations**
  24, 48, 100, 110, 120, 200, 220, 230, 240 VAC,
  12, 24 VDC, and other special voltages


Grommet


DIN terminal


Conduit

Air Saving

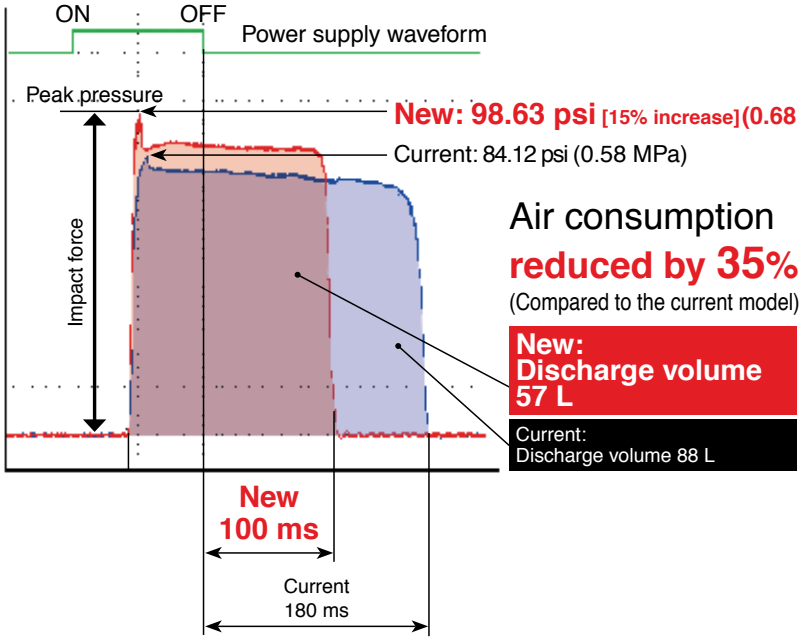
Pulse Valve (Valve for Dust Collectors)

Can hold a high peak pressure with a large flow even when operated at low air consumption

- **Peak pressure: 15% increase**
  (Compared to the current model)
- **OFF response time: 44% reduction**
  (Compared to the current model)

Direct piping type

Outlet pressure waveform (20A)



Air consumption
reduced by 35%
(Compared to the current model)

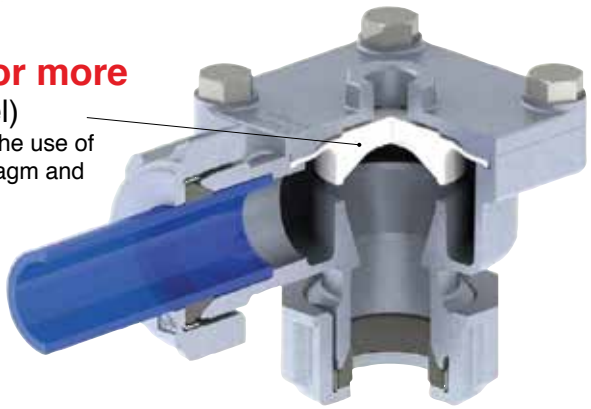
New:
Discharge volume 57 L

Current:
Discharge volume 88 L

Size: 20A, 25A, 40A

Compression fitting connection

- **Life: 10 million cycles or more**
  (10 times that of the current model)
  Longer service life can be achieved through the use of an integrated high-strength elastomer diaphragm and springless structure.



Former → New

- **Cv (20A) 9.5 ➡ 18** (1.8 times)
  The optimized orifice diameter and main valve structure with less pressure loss improve flow rate characteristics.

Air Saving Lightweight

Multistage Ejector

Air consumption

10% reduction

63 L/min (ANR)
➡**57 L/min (ANR)**

Weight

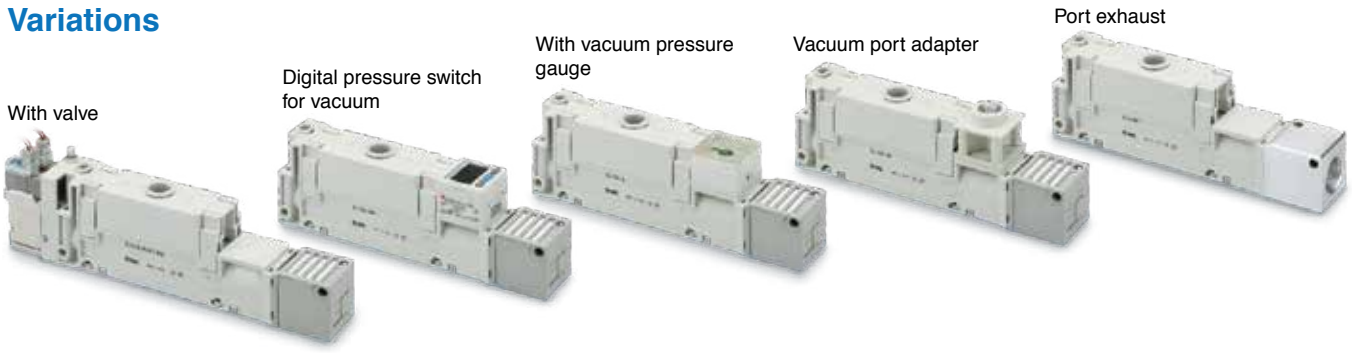
60% reduction

450 oz ➡**180 oz**
(450 g ➡ **180 g**)

Vacuum pressure **-12.18 psi (-84 kPa)**

Suction flow rate **3.53 cfm (ANR) (100 L/min (ANR))**

Variations



Global Manufacturing, Distribution and Service Network

Worldwide Subsidiaries

EUROPE

AUSTRIA
SMC Pneumatik GmbH (Austria)

BELGIUM
SMC Pneumatics N.V./S.A.

BULGARIA
SMC Industrial Automation Bulgaria EOOD

CROATIA
SMC Industrijska Automatika d.o.o.

CZECH REPUBLIC
SMC Industrial Automation CZ s.r.o.

DENMARK
SMC Pneumatik A/S

ESTONIA
SMC Pneumatics Estonia

FINLAND
SMC Pneumatics Finland OY

FRANCE
SMC Pneumatique S.A.

GERMANY
SMC Pneumatik GmbH

GREECE
SMC Hellas EPE

HUNGARY
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