

# Air Saving Speed Controller AS-R/AS-Q Series

RoHS

For details, refer to  
the **Web Catalog** or  
the catalog.



CAT.NAS20-245

## Reduce air consumption just by mounting to air cylinder

Air consumption  
reduced by **25%!!**

(33% reduction: Supply pressure at 73 psi [0.5 MPa], Air supply pressure at 15 psi [0.1 MPa])

Acquire two-pressure control just by mounting the  
product. Reduces the air supply pressure of the  
stroke on the non-working side to 29 psi [0.2 MPa].

**Mounting and operation are  
the same as a speed controller!!**

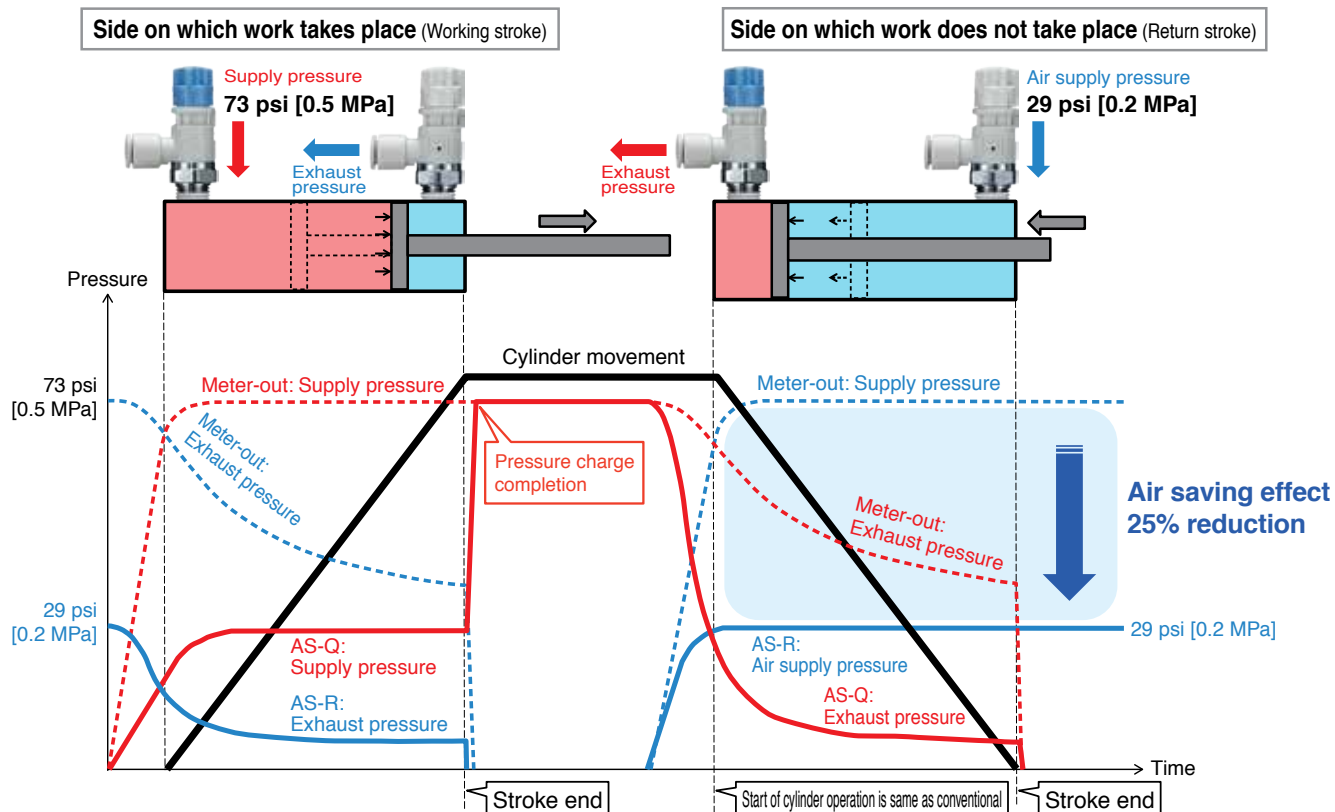


With pressure reduction  
function  
**AS-R Series**

With rapid supply  
and exhaust function  
**AS-Q Series**

## Equal response time!

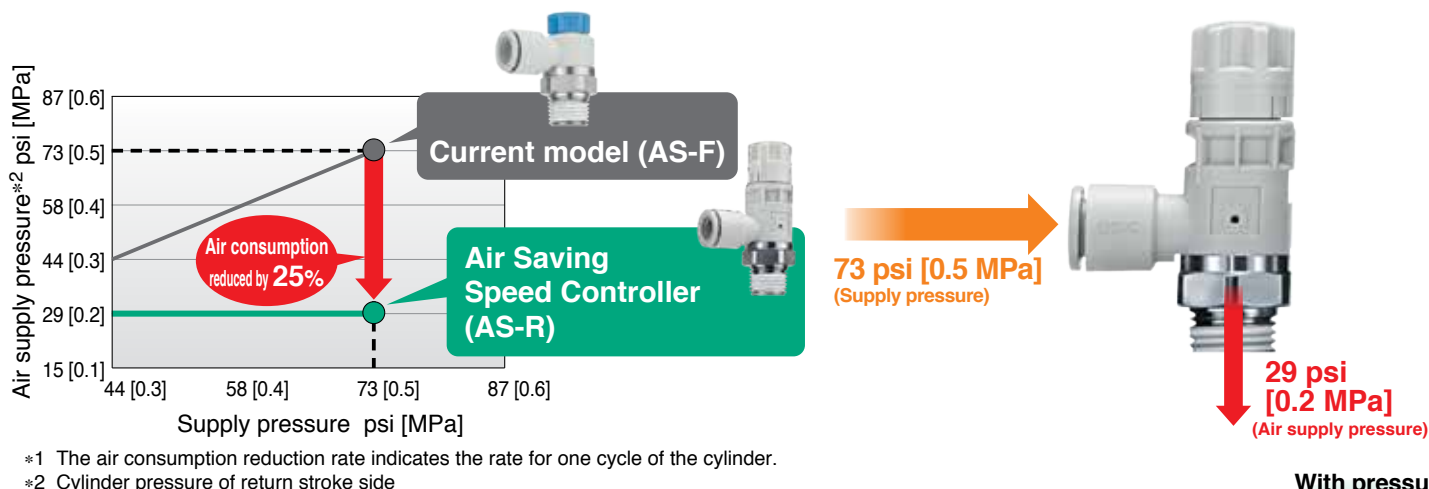
No delay of the response time with two-pressure control



**Air supply pressure of 15 psi [0.1 MPa] is also available.**

## Air Saving **25%<sup>\*1</sup>** reduction

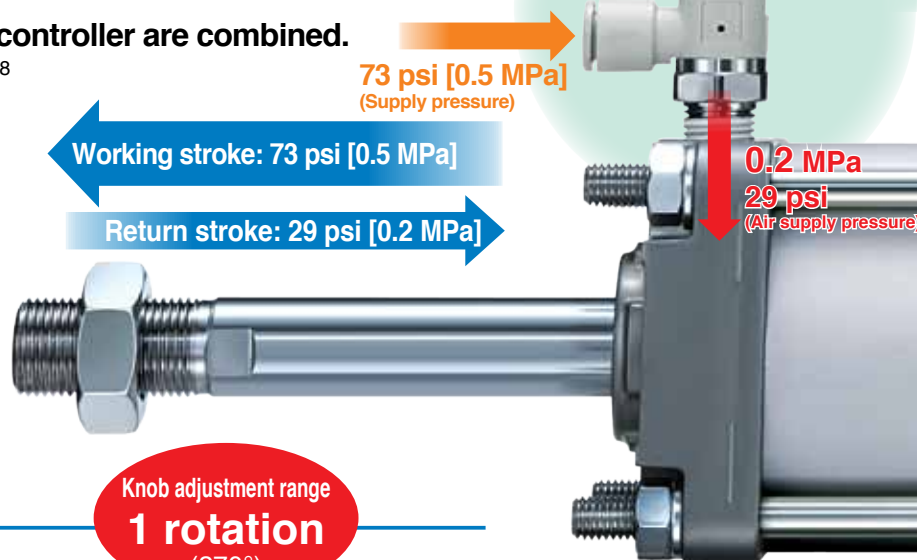
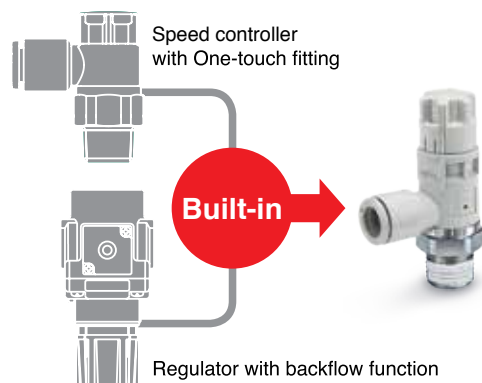
By reducing the pressure on the return stroke to 29 psi [0.2 MPa], the air consumption can be reduced.



## Compact **85%<sup>\*1</sup>** reduction (Occupied volume: 230 cm<sup>3</sup> → 34 cm<sup>3</sup>)

The functions of the regulator and speed controller are combined.

<sup>\*1</sup> Comparison of AR20K-02-B + AS22□1F-02-08 and AS22R-02-08



## Easy Adjustment

- Push-lock type
- Only speed is adjustable.

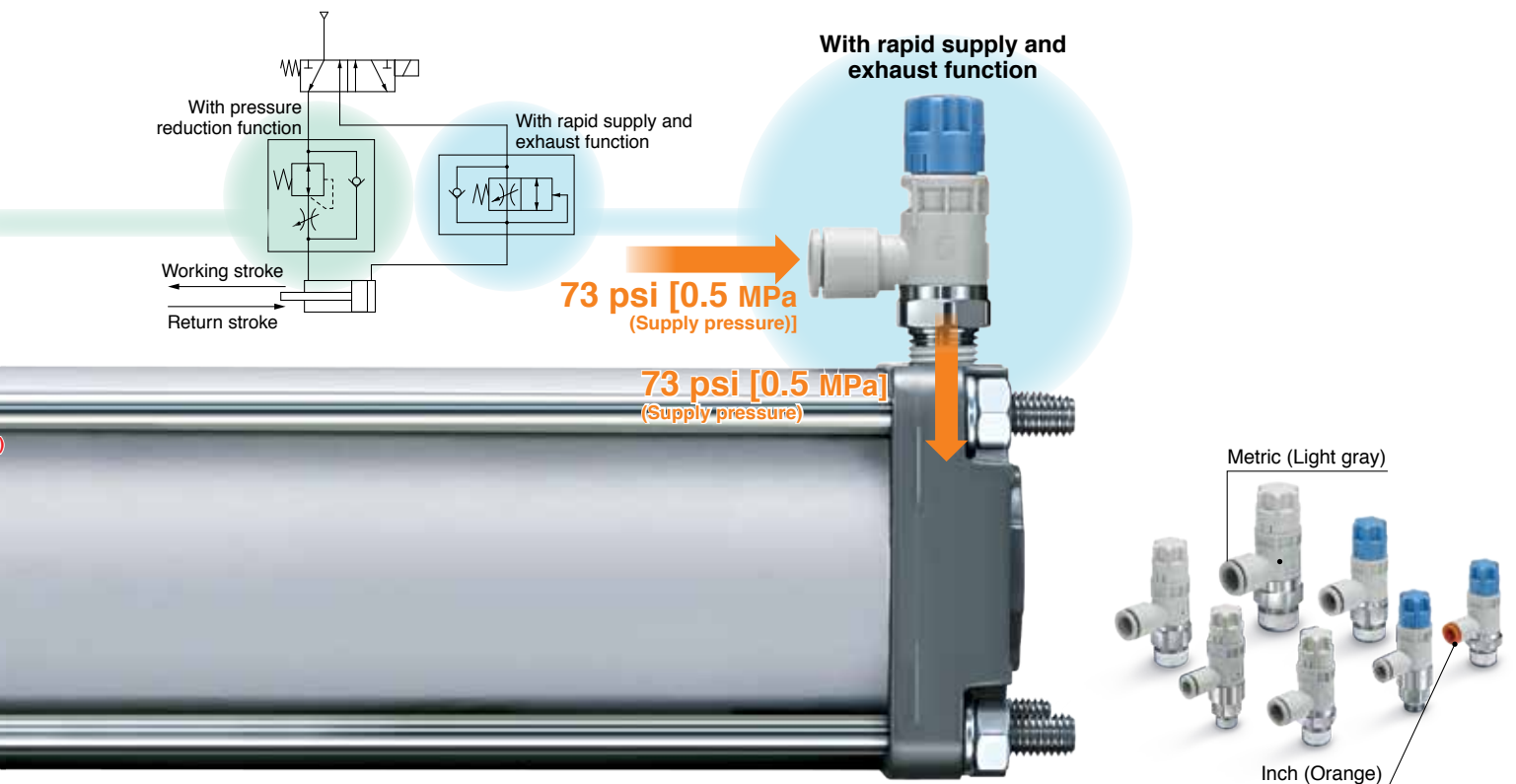


## Equal Response Time

- Improved output response at the stroke end due to rapid air-charge.
- Improved response time of return stroke due to rapid air exhaust.

## Lurch Prevention

As this product is operated by the return stroke at a reduced pressure by the meter-in circuit, a sudden extension of the working stroke is prevented.



## Variations

| With pressure<br>reduction function<br>AS-R Series | With rapid supply and<br>exhaust function<br>AS-Q Series | Model<br>(Body<br>size) | Port<br>size | Applicable tubing O.D.                |   |    |    |                                    |       |      |      | Applicable<br>tubing<br>material                      |
|--|--|-------------------------|--------------|---------------------------------------|---|----|----|------------------------------------|-------|------|------|---|
|  |  |                         |              | Metric size (Applicable thread: R, G) |   |    |    | Inch size (Applicable thread: NPT) |       |      |      |   |
|  |  |                         |              | 6                                     | 8 | 10 | 12 | 1/4"                               | 5/16" | 3/8" | 1/2" |   |
| AS22R- □01- □                                      | —  | 2                       | 1/8          | ●                                     | ● | ●  |    | ●                                  | ●     |      |      | Nylon<br>(T, TIA series)                              |
| AS22R- □02- □                                      | AS22Q- □02- □  |                         | 1/4          | ●                                     | ● | ●  |    | ●                                  | ●     |      |      |   |
| AS32R- □02- □                                      | AS32Q- □02- □  | 3                       | 1/4          | ●                                     | ● | ●  |    | ●                                  | ●     | ●    |      | Soft nylon<br>(TS, TISA series)                       |
| AS32R- □03- □                                      | AS32Q- □03- □  |                         | 3/8          | ●                                     | ● | ●  |    | ●                                  | ●     | ●    |      |   |
| AS42R- □03- □                                      | AS42Q- □03- □  | 4                       | 3/8          |                                       |   | ●  | ●  |                                    | ●     | ●    | ●    | Polyurethane<br>(TU, TIUB series)                     |
| AS42R- □04- □                                      | AS42Q- □04- □  |                         | 1/2          |                                       |   | ●  | ●  |                                    | ●     | ●    | ●    |   |
|  |  |                         |              |                                       |   |    |    |                                    |       |      |      | Fluororesin<br>(TLM, TILM series)<br>(TH, TIH series) |

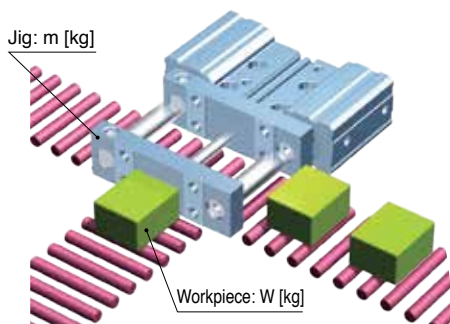
# Application Proposal for Air Saving Speed Controller

Air consumption reduction ratio: **50%**

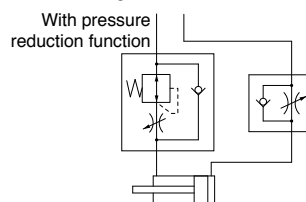
- \* Comparison of air consumption when the supply pressure is 73 psi [0.5 MPa]
- \* In this case, the load to move the workpiece is piston area multiplied by 29 psi [0.2 MPa].

## Pusher

- Applications which transfer a workpiece, W (kg), during the working stroke, and with no workpiece (or loading) during the return stroke
- The cylinder is returned right after reaching the end of the working stroke so that **air consumption can be reduced without unnecessary charging**.



<Circuit diagram>



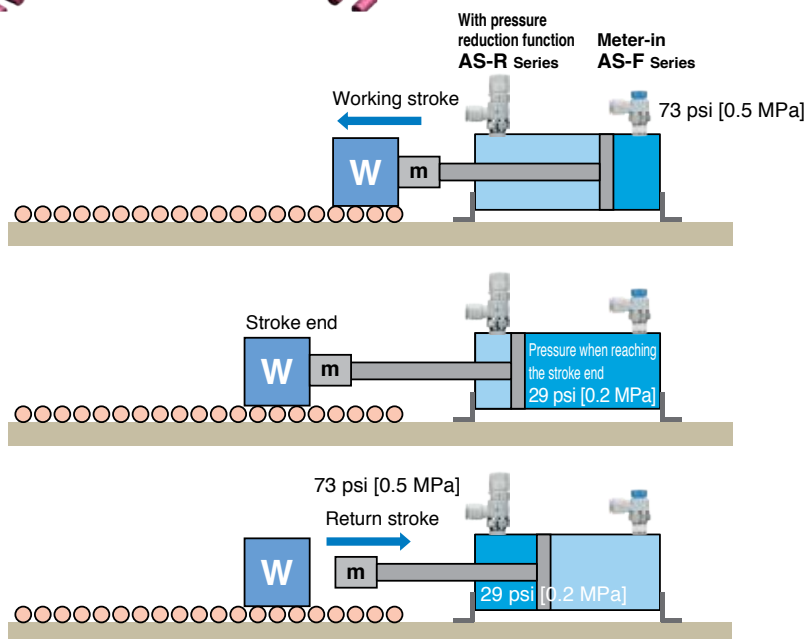
### <Load and applicable speed controller>

- 1 Start the stroke operation by turning the solenoid valve ON.

- 2 The solenoid valve is turned off at the end of the working stroke.

→ The air consumption can be reduced by shutting off the air supply before the internal pressure of the cylinder reaches the supply pressure.

- 3 The air consumption for the return stroke can be reduced by supplying the pressure which has been reduced by the AS-R.



Air consumption reduction ratio: **46%**

## Combination with the Optimum Size of Cylinder Size

For example, when an ø80 mm bore cylinder is used in place a ø63 mm bore cylinder that does not have enough force, the customer can choose an optimally sized ø67 mm bore JMB series cylinder. In addition, an AS-R/AS-Q series combined with this cylinder can reduce air consumption by up to 46%.

### Air Consumption (for one cycle)

| Speed controller        | Air Saving Speed Controller AS-R/AS-Q Series | Elbow type AS Series |
|-------------------------|--|----------------------|
| Cylinder bore size [mm] | ø67 (Intermediary bore size)                 | ø80                  |
| Air consumption [L]     | 3.1  | 5.8                  |

Conditions:  
Working stroke pressure: 73 psi [0.5 MPa]  
Return stroke pressure: 29 psi [0.2 MPa]  
Stroke: 100 mm

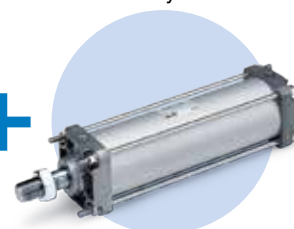
\* Utilizing the SMC sizing program.

**46% reduction**

Air Saving Speed Controller



Air Cylinder JMB Series Intermediary bore size



|           | ø63            | ø67 (Intermediary bore size) | ø80                    |
|-----------|----------------|------------------------------|------------------------|
| Bore size | ø63            | ø67                          | ø80                    |
| Force     | Not acceptable | Acceptable (Optimal)         | Acceptable (Excessive) |