Doc.no.DOC1018150

Operation Manual

PRODUCT NAME

Deceleration Controller

MODEL/ Series/ Product Number

DAS

SMC Corporation

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Deceleration Controller
DAS Series
Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage.
These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1) , and other safety regulations.

*1) ISO 4414: Pneumatic fluid power -- General rules relating to systems.
ISO 4413: Hydraulic fluid power -- General rules relating to systems.
IEC 60204-1: Safety of machinery -- Electrical equipment of machines .(Part 1: General requirements)
ISO 10218: Manipulating industrial robots -Safety.
etc.

⚠ **Caution**	**Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
⚠ **Warning**	**Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
⚠ **Danger**	**Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

⚠Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results.

The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product.

This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly.

The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1.The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.

2.When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.

3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.

2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.

3. An application which could have negative effects on people, property, or animals requiring special safety analysis.

4.Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

Deceleration Controller
DAS Series
Safety Instructions

⚠ Caution

The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.

If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.

If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.
Read and accept them before using the product.

Limited warranty and Disclaimer

1.The warranty period of the product is 1 year in service or 1.5 years after the product is delivered,whichever is first.
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.

2. For any failure or damage reported within the warranty period which is clearly our responsibility,
a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.

3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

Compliance Requirements

1.The use of SMC products with production equipment for the manufacture of weapons of mass destruction(WMD) or any other weapon is strictly prohibited.

2.The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulation of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

⚠ Caution

SMC products are not intended for use as instruments for legal metrology.

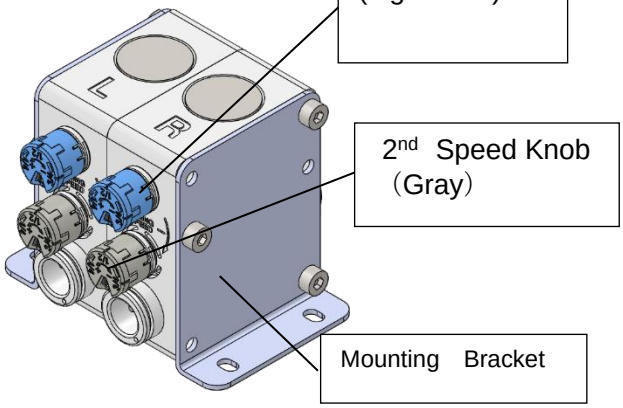
Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country.

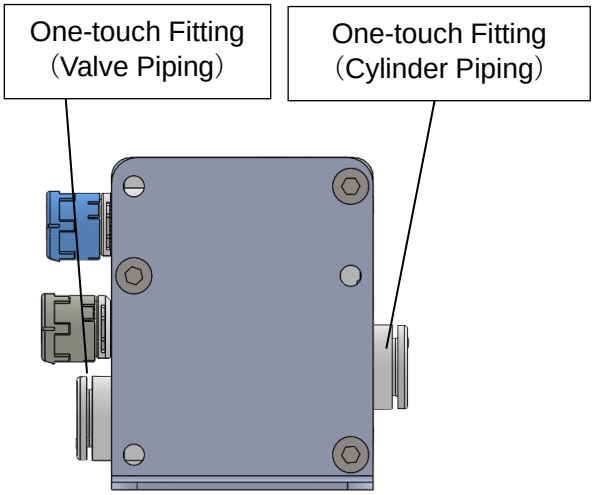
Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

2.Specific Product Precautions

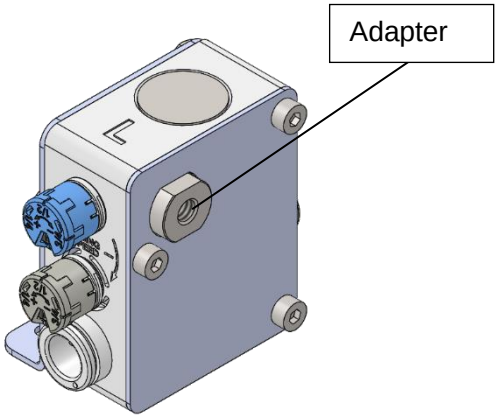
Parts and Names of Products

For Double-end





For Single-end
(L Type Shown)



Design/ Selection

⚠ Warning

(1)Confirm the specifications.

This product is designed to be used only in a compressed air system (including vacuum).

Do not operate at pressures, temperatures, etc., beyond the range of specifications, as this can cause damage or malfunction. (Refer to the product specifications.)

Please contact SMC when using a fluid other than compressed air. We do not guarantee against any damage if the product is used outside of the specifications range.

(2) This product is designed to perform deceleration of the cylinder stroke and cannot be used for a complete accurate and precise intermediary stop of the actuator.

(3) Sonic conductance and critical pressure ratio values for products are representative values. The value of the deceleration controller after deceleration is the value as of when the 2nd speed knob is fully opened.

Design/ Selection

⚠ Caution

(1) Check the range in which the deceleration timing can be adjusted.

Check the range in which the deceleration timing can be adjusted by using the following formula as a guide.

It may be difficult to control the deceleration timing with this product depending on the cylinder stroke and initial velocity.

* When you make adjustment for the first time, adjust the speed by setting the number of speed controller rotations from fully closed position to four to five rotations. The cylinder may extend suddenly if the cylinder is not pressurised. Make adjustment by paying attention to the surrounding areas.

$$0.4^{※1} < \frac{Cylinder\ stroke\ (mm)}{Cylinder\ initial\ velocity\ (mm/sec)}$$

*1 Switching time 0.4 (sec.)
Minimum switching time 0.3 sec. / guideline switching stroke 75% ≈ 0.4

Example) When a cylinder whose stroke is 50 mm is operated at 100 mm/sec, the formula is: 50 / 100 = 0.5. As the value is greater than 0.4, deceleration control is possible.

When a cylinder whose stroke is 50 mm is operated at 200 mm/sec, the formula is: 50 / 200 = 0.25. As the value is smaller than 0.4, deceleration control is not possible.

Design/ Selection

⚠ Caution

(2) Pay attention to the load weight.

Set the load weight of each cylinder by following the procedures for selecting a product by model selection. This product controls the cylinder velocity by increasing the back pressure through compression of the air in the cylinder. Therefore, if the 2nd speed knob (gray) is excessively throttled, the cylinder may bounce at the stroke end depending on the load weight or initial velocity. When an adequate deceleration is not possible due to forces such as moment of inertia, set the deceleration timing earlier or decrease the initial cylinder velocity.

(3) Pay attention to the piping tube length.

The larger the piping volume between the product (deceleration controller) and cylinder, the lower the deceleration effect as because the back pressure does not increase.

We recommend that you install the product as close to the cylinder as possible. When the piping tube is long, adjust the tube length by referring to the formula below as a guide.

$$\frac{Cylinder\ bore\ size[(mm)]^2}{[Piping\ tube\ ID(mm)]^2} \times Cylinder\ stroke\ (mm) \times (1-0.75)^{※2}$$

$$> Tube\ length\ (mm)$$

Example) When connecting TU0604 tube to the cylinder (ø25, 500 mm stroke) and starting deceleration at 75% point of the stroke length.

The formula is: (25^2 / 4^2) * 500 * (1 - 0.75) > 4,882. Therefore, the piping tube must be 4.8 m or shorter.

*2 When starting deceleration at 75% point of the cylinder stroke length, insert multiplication by 0.25 (= 1 - 0.75). When starting deceleration at 90% point of the cylinder stroke length, insert multiplication by 0.1 (= 1 - 0.9).

When the piping tube length cannot be adjusted in the above range, set the deceleration timing earlier or decrease the initial cylinder velocity.

(4) When using the product along with the built-in air cushion incorporated in the cylinder, pay attention to the adjustment method.

If an air cushion is already incorporated in the cylinder, the stroke movement may temporarily stop at the original air cushion position or the stick-slip phenomenon may occur during the 2nd speed setting of this product.

If this is the case, readjust the cushion needle incorporated in the cylinder by gradually opening the cushion needle.

Mounting

⚠ Warning

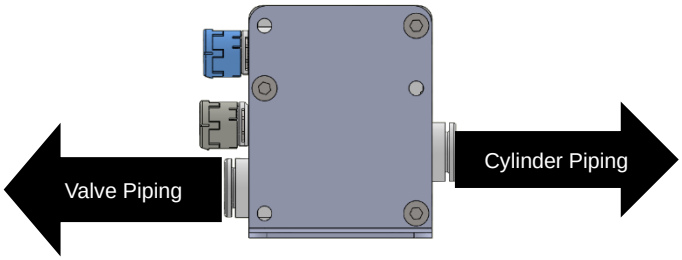
(1)Keep the operation manual and check its contents.

Install the products and operate it only after reading the operation Manual carefully and understanding its contents. Also, keep the Manual where it can be referred to as necessary.

(2)Ensure sufficient space for maintenance activities. When installing the products, allow access for maintenance

(3) Check the piping direction, and then mount the product.

If this product is mounted in the opposite direction, speed adjustment and deceleration effect may not be observed, and the cylinder may suddenly move at an uncontrollable speed.

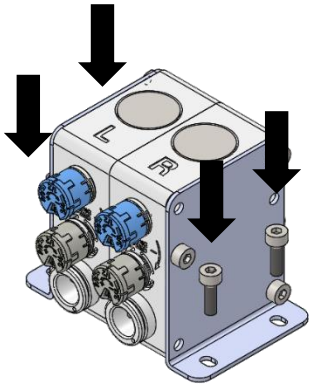


(4) Mount the product by using the mounting bracket.

When installing the product, use the mounting holes of the bracket bottom face and secure the product with M3 screws.

（The screws should be prepared by the user.)

Tighten the screws to the appropriate torque for mounting the product.

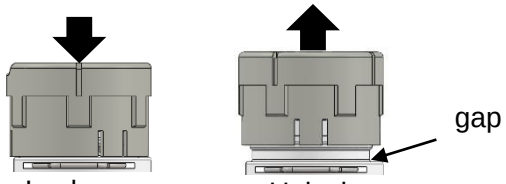


Mounting

⚠ Warning

(5) After pushing the knob down to lock, confirm that it is locked

Confirm that the knob is locked by pushing the knob in after adjusting the cylinder speed. When the speed controller is unlocked, the set flow may change. If the knob is pulled with force while the speed controller is unlocked, it may result in breakage. When it is unlocked, do not pull the knob out with force.



(6) Turn the knob slowly in the open or closed direction during operation.

(Guide for rotation speed: 1 [rev/sec] or below)

Scale malfunction may occur if quick adjustment is made between two graduations (for example, 0 →1→0).

(7) Do not force the knob to turn outside the specified range indicated to the scale.

The scale may indicate a wrong value, possibly leading to a wrong setting.

[Example of wrong use]: While the scale indication range is 0 to 8, turning the scale in the open direction from graduation 8 caused the scale to indicate 0.

size	Target Knob	Scale indication range
DAS5	Timing Knob	0~8
	2nd Speed Knob	0~8
DAS7	Timing Knob	0~8
	2nd Speed Knob	0~10

(8) Timing Knob and 2nd Speed Knob have a stopper for fully close in rotating direction. Excess torque may break the stopper. Table below shows the maximum allowable torque of the knob.

Size	Target Knob	Max allowable torque 【N・m】
DAS5	Timing Knob	0.04
	2nd Speed Knob	0.04
DAS7	Timing Knob	0.04
	2nd Speed Knob	0.07

Mounting

⚠ Warning

(9) Do not use tools such as pliers to rotate the knob.

It can cause idle rotation of the knob or damage.

(10) To adjust the 2nd speed knob, start with the knob in the fully closed position, and then make adjustment by turning it counterclockwise.

Depending on the opening adjustment condition of the knob (needle), the cylinder may suddenly move. Adjustment of the knob (needle) in the clockwise direction decreases the flow rate (closes), and its adjustment in the counterclockwise direction increases the flow rate (opens).

The actuator speed decreases when an adjustment in the clockwise direction is made and increases when an adjustment in the counterclockwise direction is made.

(11) Do not apply excessive force or shock to the body or fittings with an impact tool.

It can cause damage or air leakage.

⚠ Caution

(1) Cylinder speed check

Large variations in actuator speed can occur as a result of individual product differences due to tolerance of the components, individual cylinder differences, operating conditions, temperature, etc. The final cylinder speed should be checked each time the setting has been changed.

(2) Lifting force for the knob

The lifting force for the knob is specified as shown in the table below.

Lifting the knob with a lifting force larger than that specified in the table below will cause the knob to come off, make the cylinder setting speed or scale incorrect, or cause damage to the product.

size	Target Knob	Lifting force N
DAS5	Timing Knob	1～1.5
	2nd Speed Knob	1～1.5
DAS7	Timing Knob	1～1.5
	2nd Speed Knob	3～4

Mounting

⚠ Caution

(3) Do not apply excessive shocks (100 m/s^2 or more) to the product by dropping it or hitting it against another object during handling.

Even if the body appears undamaged, the internal components may be damaged, leading to a malfunction.

(4) For mounting the fitting to the adapter (M5 size thread mounting)

①Tightening method

First, tighten it by hand, then give it an additional 1/6 turn to 1/4 turn with a hexagon wrench. Refer to Table below for reference.

Connection thread size	Proper tightening torque 【N・m】
M5	1～1.5

Note) Excessive tightening may damage the thread portion or deform the gasket and cause air leakage. If the screw is not tightly screwed in at the torque stated, it may come loose or air may leak.

piping

⚠ Caution

(1) Refer to the Fittings & Tubing Precautions for handing One-touch fittings.

(2) Preparation before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

Precautions for One-Touch Tube Fittings

Mounting/Piping

⚠ Caution

(1) Connection and disconnection of tube from one-touch fitting

① Installation of tube

1) Cut the tube perpendicularly, being careful not to damage the external surface. Use an SMC tube cutter TK-series. Do not cut the tubing with pliers, nippers, scissors, etc., otherwise the tubing will be deformed and problems may result.
2) The outside diameter of the polyurethane tubing swells when internal pressure is applied to it. Therefore, it may be impossible to re-insert the tubing into One-touch fittings. Check the tubing outside diameter, and when the accuracy of the outside diameter is +0.07mm or larger for φ2, and +0.15mm or larger for other sizes, re-insert it into the One-touch fitting without cutting the tube. When the tubing is re-inserted into the One-touch fitting, confirm that the tubing goes through the release button smoothly.
3) Grasp the tubing, and slowly push it straight (0 to 5°) into the One-touch fitting until it comes to a stop.
4) Pull the tubing back gently to make sure it has a positive seal. Insufficient installation may cause air to leak or the tubing to release.

As a guide for checking if the tubing is pulled out or not, refer to the following table.

② Removal of the tube

1) Push the release button flange evenly and sufficiently to release the tube. Do not push in the tubing before pressing the release button.
2) Pull out the tubing while keeping the release button depressed. If the release button is not held down sufficiently, the tubing cannot be withdrawn.
3) To reuse the tubing, remove the previously lodged portion of the tubing. If the lodged portion is left on without being removed, it may result in air leakage and make the removal of the tubing difficult.

Precautions for One-Touch Tube Fittings

Mounting/Piping

⚠ Caution

(2) When mounting the tube, resin plug or metal rod, do not press the release button.

Do not press the release button unnecessarily before mounting tubing, resin plugs and metal rods. This can cause the disconnection of tube.

(3) When using a tube other than that from SMC, make sure that the tube material and the O.D. accuracy satisfy the following specifications.

1) Nylon tube: within ±0.1 mm

2) Soft nylon tube: within ±0.1 mm

3) Polyurethane tube: within -0.2mm to +0.15mm

Do not use a tube that does not satisfy the specified tubing O.D. accuracy, or if a tube has a different I.D., material, hardness, or surface roughness from those of SMC's tube. Please consult with SMC if there is anything unclear. It may cause difficulty in connecting the tube, leakage, disconnection of the tube, or fitting damage.

Recommended Piping Conditions

(1) When connecting piping to the One-touch fitting, use a pipe length with sufficient margin, in accordance with the piping conditions shown in Figure 1.

Also, when using a tying band, etc., to bind the piping together, make sure that external force does not come to bear on the fitting. (see Figure 2)

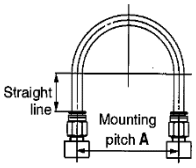


Figure 1 Recommended piping

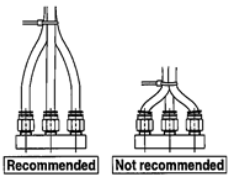


Fig. 2 When using a tying band to bind the piping together

Unit:mm

Tubing size	Mounting pitch A			Straight-line Pipe length
	Nylon tube	Soft nylon tube	Polyurethane tube	
φ4, φ5/32"	56or more	44or more	26or more	20or more
φ6	84or more	66or more	39or more	30or more
φ1/4"	89or more	70or more	57or more	32or more
φ8, φ5/16"	112or more	88or more	52or more	40or more
φ10	140or more	110or more	69or more	50or more
φ3/8"	134or more	105or more	69or more	48or more
φ12	168or more	132or more	88or more	60or more
φ1/2"	178or more	140or more	93or more	64or more

Air Supply

⚠ Warning

(1) Type of fluids

Please consult with SMC when using the product in applications other than compressed air.

(2) When there is a large amount of drainage

Compressed air containing a large amount of drainage can cause the malfunction of pneumatic equipment. An air dryer or water separator should be installed upstream from filters.

(3) Drain flushing

If condensation in the drain bowl is not emptied on a regular basis, the bowl will overflow and allow the condensation to enter the compressed air lines. This causes the malfunction of pneumatic equipment.

If the drain bowl is difficult to check and remove, the installation of a drain bowl with an auto drain option is recommended.

For compressed air quality, refer to SMC catalog "Compressed Air Purification System".

(4) Use clean air

Do not use compressed air that contains chemicals, synthetic oils that include organic solvents, salt, corrosive gases, etc., as it can cause damage or malfunction.

⚠ Caution

(1) Install an air filter.

Install an air filter at the upstream side of valve. Select a filtration rating of 5 μm or below, or that equivalent to or lower than ISO 8573-1:2010 [6:4:4]

* This rating is equivalent to the rating produced when an air filter is installed for the purity class [7:4:4] of the inlet side compressed air.

(2) Ensure that the fluid and ambient temperatures are within the specified range.

If the fluid temperature is 5℃ or less, the moisture in the circuit could freeze, causing damage to the seals or leading to equipment malfunction. Therefore, take appropriate measures to prevent freezing.

For compressed air quality, refer to SMC catalog "Compressed Air Purification System".

Operating environment

⚠ Warning

(1) Do not use in an atmosphere containing corrosive gases, chemicals, sea water, water, water steam, or where there is direct contact with any of these.

(2) Do not expose the product to direct sunlight for an extended period of time.

(3) Do not mount the product in locations where it is exposed to radiant heat.

Maintenance

⚠ Warnnig

(1) Do not disassemble the product or make any modifications.
Do not disassemble the product or make any modifications, including additional machining. Doing so may cause human injury and/or an accident

(2)Perform maintenance and inspection according to the procedures indicated in the operation manual.
If handled improperly, malfunction or damage of machinery and equipment may occur.

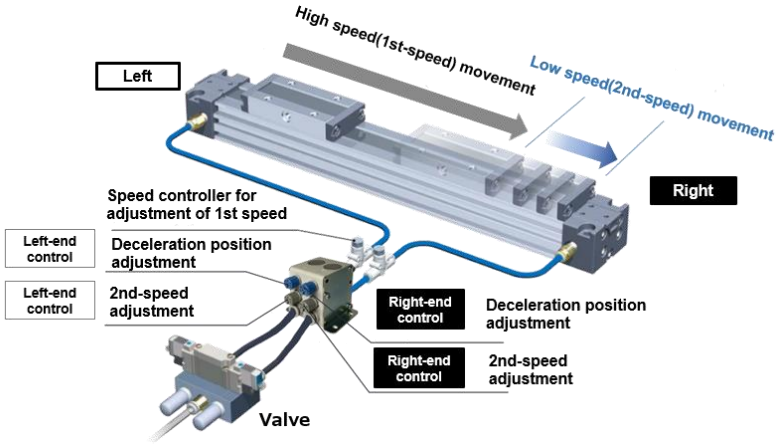
(3) Maintenance work
If handled improperly, compressed air can be dangerous.
Assembly, handling, repair and element replacement of pneumatic systems should be performed by a knowledgeable and experienced person.

(4) Drain flushing
Remove drainage from air filters regularly.

(5) Removal of equipment, and supply/exhaust of compressed air.
Before components are removed, first confirm that measures are in place to prevent workpieces from dropping, run-away equipment, etc. Then, Cut the supply pressure and electric power, and exhaust all compressed air from the system using the residual pressure release function. When machinery is restarted, proceed with caution after confirming that appropriate measures are in place to prevent sudden movement.

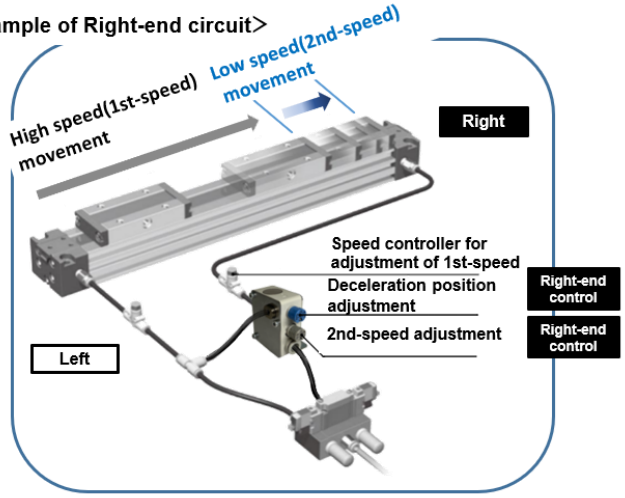
2-1. Piping Examples

Deceleration control on both ends



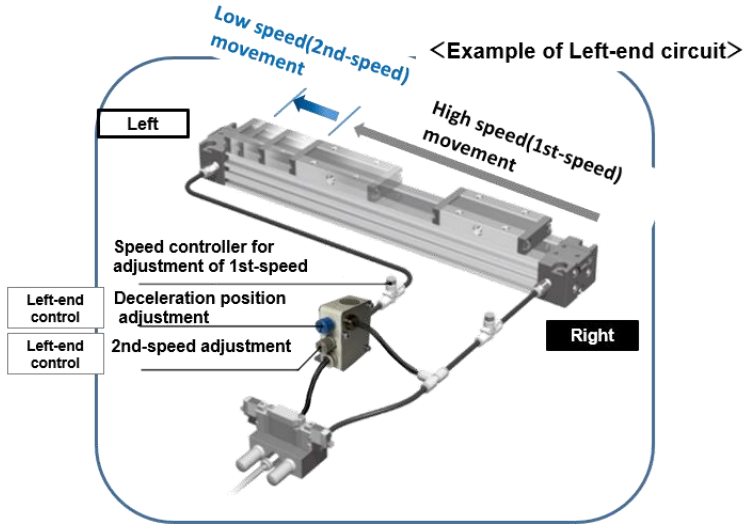
For deceleration control on R end only

<Example of Right-end circuit>

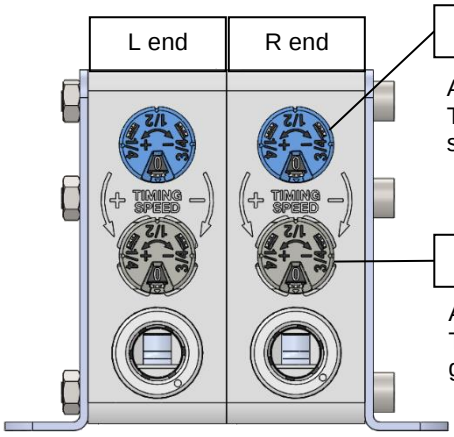


For deceleration control on L end only

<Example of Left-end circuit>



2-2. Operation Procedure



Deceleration Controller

Timing Knob(Light Blue)（Mark：TIMING ）

Adjust the timing of deceleration effect (start position of second speed).
The smaller the value on the scale, the closer the start position of the 2nd speed is to the stroke end.

2nd Speed Knob (Gray)(Mark：SPEED)

Adjust the cylinder deceleration effect (2nd speed).
The smaller the value on the scale, the slower the 2nd speed and greater the deceleration effect.

Adjustment procedure

*1 These procedures are for making adjustment by moving the cylinder piston on the L end at its initial position to the R end by using the deceleration controller (double-end specifications). When adjustment is made with the single-end specifications or by moving the cylinder piston on the R end at its initial position to the L end, skip unnecessary steps and reverse the adjustment direction as necessary.

*2 When using a cylinder with an air cushion, we recommend that you fully open the cushion needle of the cylinder.
Please check SMC website for further details on setting and adjustment of DAS series.

1.Initial Settings

Timing Knob Setting
(R and L end)

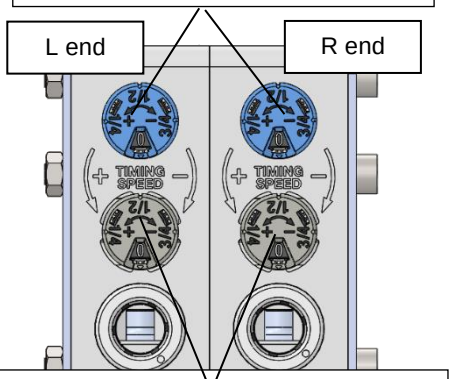
2nd Speed Knob Setting
(R and L end)

Speed Controler Adjust
(R and L end)

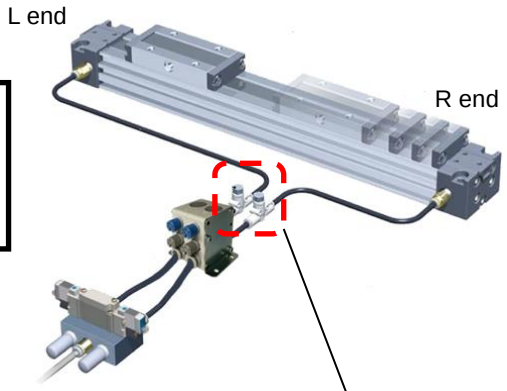
Valves Switchover
(L end to R end cylinder stroke)

Cylinder is temporarily stopped by deceleration controller

Set the scale on the timing Knob(light Blue)to “8”



Set the scale on the 2nd Speed Knob(Gray) to “0”



※Please refer to the procedure description for details.

●Procedures

1. Initial setting

1-1. [Setting of timing knob and 2nd speed knob]

Adjust the timing knob to a position near the fully opened position ("8" on scale), and adjust the 2nd speed knob to the fully closed position ("0" on scale).

[Speed controller adjustment]

Adjust the speed controller to a state of 4 to 5 turns in the opening direction from the fully closed position.

* If the cylinder bore size, stroke, and piping tube length are within the respective recommended dimensions, and it is also possible to fully check the safety surrounding areas, adjust the speed controller to the set speed, and then make further adjustments.

Follow the above procedures for each of the R end and L end in accordance with the deceleration controller specifications (double-end specifications and single-end specifications) and the piping position.

Speed Controller Adjustment
L end installation in the figure : R end to L end cylinder stroke control
R end installation in the figure : L end to R end cylinder stroke control
※In case of meter-out control

⚠ Caution

* Before conducting switching, check the valve switching directions.
When under meter-out control, the cylinder may suddenly move at uncontrollable speed depending on the switching direction.

2. 2nd speed adjustment

2nd Speed Knob Adjustment (R end)

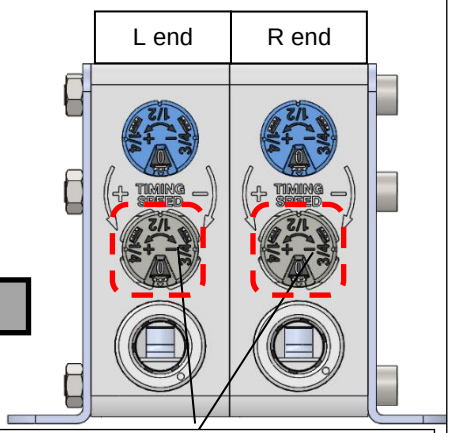
Cylinder stroke to stroke end

Valve Switchover (R end to L end cylinder stroke)

Cylinder is temporarily stopped by deceleration controller

2nd Speed Knob Adjustment (L end)

Cylinder stroke to stroke end



2nd Speed Knob (Gray) Adjustment

●**Procedures**

2. 2nd speed adjustment

[Adjustment of 2nd speed knob]

In order for the desired deceleration speed to be achieved, adjust the 2nd speed knob in the opening (+) direction, so that the cylinder moves from the temporarily stopped position in the middle of the stroke up to the stroke end.

* If the cylinder is not in a temporarily stopped state in the middle of the stroke (collision occurs at the stroke end), setting by deceleration controller cannot be made. It is necessary to adjust the speed controller knob in the closing (−) direction.

Follow the above procedures for each of the R end and L end in accordance with the deceleration controller specifications (both ends specifications and one end specifications) and the piping position.

* Repetitively make adjustment as necessary.

3. 1st speed readjustment

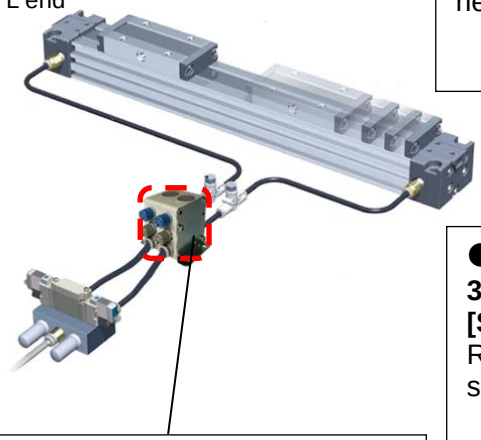
Speed Controller Readjustment (Figure R end)

Valve Switchover (L end to R end cylinder stroke)

Speed Controller Readjustment (Figure L end)

Valve Switchover (R end to L end cylinder stroke)

L end



R end

Speed Controller Adjustment

L end installation in the figure :

R end to L end cylinder stroke control

R end installation in the figure :

L end to R end cylinder stroke control

※In case of meter-out control

●Procedures

3.1 1st speed readjustment

[Speed controller readjustment]

Readjust the speed controller to the set speed.

Follow the above procedures for each of the R end and L end in accordance with the deceleration controller specifications (both ends specifications and one end specifications) and the piping position.

* Repetitively make adjustment as necessary.

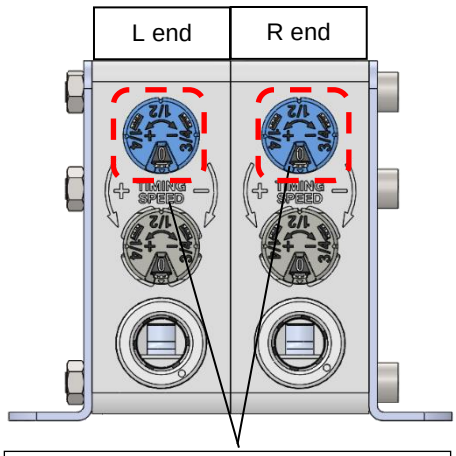
4 . Timing Knob Adjustment

Timing Knob Adjustment (R end)

Valve Switchover (L end to R end cylinder stroke)

Timing Knob Adjustment (L end)

Valve Switchover (R end to L end cylinder stroke)



Timing Knob (Light Blue) Adjustment

●Explanation of procedure
4. Adjustment of timing knob
【Adjustment of timing knob】
Adjust the timng knob in the closed (-) direction to determine the starting position of the second speed.
The standard for adjustment is to start deceleration from about 75% of the cylinder stroke.

The above procedure should be performed for the R end and L end, respectively, depending on the specifications of the deceleration controller and the piping location (double-end or single-end).
Repeat the adjustment as necessary.

5. Fine-tuning of 2 to 4 processes

●Procedures
5. Fine adjustments in processes 2 to 4
Make fine adjustments of processes 2 to 4 to the respective target speeds and to the changeover position to the 2nd speed.

Adjustment complete

*Note: In a vertical downward deceleration control, the allowable ranges of load and piping conditions are narrowed. Clarify the bore size, stroke, load, pressure, and piping conditions (diameter and length), and then check products via the simulation tool (selection tool) on our website.
Contact your SMC Sales representative for any inquiries.

3.Application

This product is designed to perform deceleration of pneumatic cylinders.

4.Specifications

Model	DAS5	DAS7
Fluid	Air	
Proof pressure	1.05MPa	
Maximum operating pressure	0.7MPa	
Minimum operating pressure	0.2MPa	
Ambient and fluid temperature	-5～60℃（No freezing）	
Applicable tube materials(note 1)	Nylon, soft nylon, polyurethane,FEP,PFA	

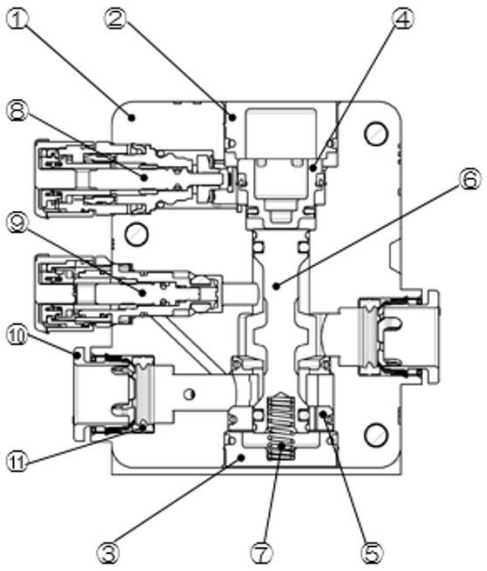
Note1: Pay attention to the maximum operating pressure for soft nylon and polyurethane.

5.Troubleshooting

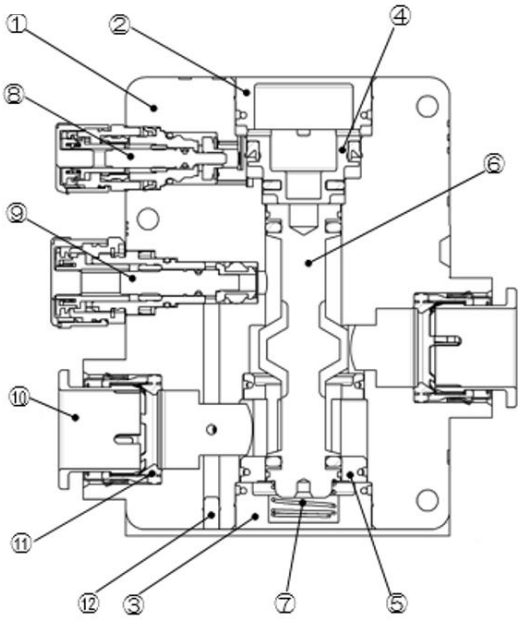
Trouble	Possible causes	Countermeasure
Deceleration control is disabled.	The 1st speed is excessively high.	Turn the speed controller knob to the (−) direction to decrease the speed of the 1st speed.
	The 2nd speed is excessively high.	Turn the 2nd speed knob (gray) to the (−) direction to decrease the speed of the 2nd speed.
	The timing knob (blue) is in a fully closed position.	Adjust the timing knob in the (+) direction from the fully closed position.
	The piping volume is large.	Decrease the piping volume between this product and the cylinder. For the piping tube length, refer to the calculation formula in (4) of the Design/ Selection section.
	The cylinder stroke is too short.	Select the cylinder of stroke length of 50 mm or more.
	The cylinder bore size is inappropriate.	Select the cylinder of bore size of 10 mm to 100 mm.
	Dust inside	Perform air blow from the port on the valve piping side. If the problem is not solved even after air blow, install an air filter to the piping, and replace the product with a new one.
	The screw on the piping port (for single-end) is loose, and air is leaking.	Conduct piping with an appropriate torque. Confirm that air is not leaking from the piping.
Noise is heard at the stroke end.	The piping orientation is installed in the opposite direction.	Check the direction of the fitting on the valve piping and cylinder piping.
Air leaks from the One-touch fitting.	The tube is cut with cutting pliers or a nipper, and its cutting plane is not appropriate.	Cut the tube by using a tube cutter to make an appropriate cutting plane and use it.

6.Construction

DAS5



DAS7



Component Parts

No.	Description	Material	Note
1	Body	PBT	
2	Cover A	BRASS	Electroless nickel Plated
3	Cover B	BRASS	Electroless nickel Plated
4	Piston	POM	
5	Retainer	POM	
6	Spool Ass'y	-	Electroless nickel Plated
7	Spring	SUS	
8	Body Ass'y(Timer)	-	
9	Body Ass'y(Speed)	-	
10	Cassette	-	
11	Seal	NBR	

Component Parts

No.	Description	Material	Note
1	Body	PBT	
2	Cover A	BRASS	Electroless nickel Plated
3	Cover B	BRASS	Electroless nickel Plated
4	Piston	POM	
5	Retainer	POM	
6	Spool Ass'y	-	Electroless nickel Plated
7	Spring	SUS	
8	Body Ass'y(Timer)	-	
9	Body Ass'y(Speed)	-	
10	Cassette	-	
11	Seal	NBR	
12	Plug	Brass	Electroless nickel Plated

Revision history

SMC Corporation
4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021 JAPAN
Tel: + 81 3 5207 8249 Fax: +81 3 5298 5362
URL https://www.smcworld.com