PISCO® Hot NEWS

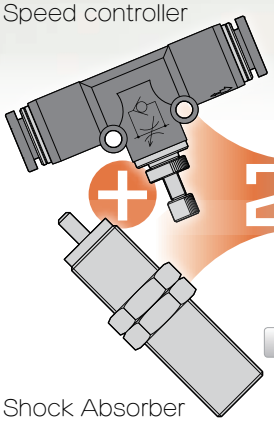
No. NP 49-03e

Q *Be bothered by installation or replacement of a shock absorber?*

A *There is a solution with Pisco's*

2-stage Speed Controller

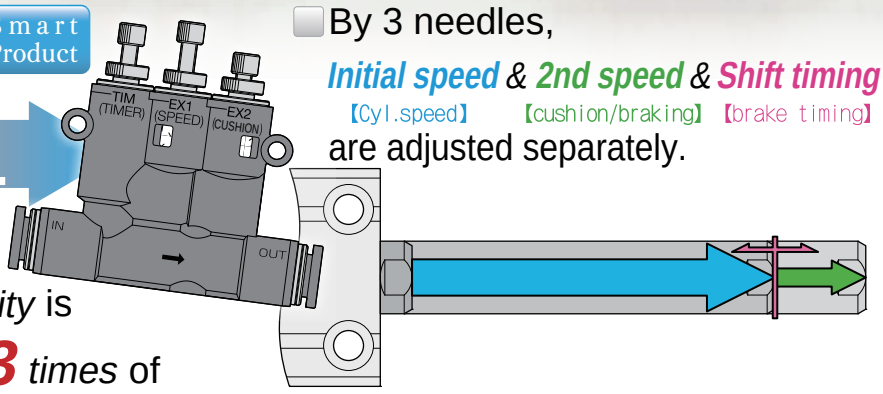
Speed controller



Shock Absorber

Smart Product

2 in 1



☐ By 3 needles,

Initial speed & ***2nd speed*** & ***Shift timing***

【Cyl.speed】 【cushion/braking】 【brake timing】

are adjusted separately.

☐ *Durability* is

about ***3*** *times* of

a normal cylinder mounting type shock absorber.

Product's initial series name "Brake built-in Speed Controller" has been changed to "2-stage Speed Controller", which describes its feature more appropriately.

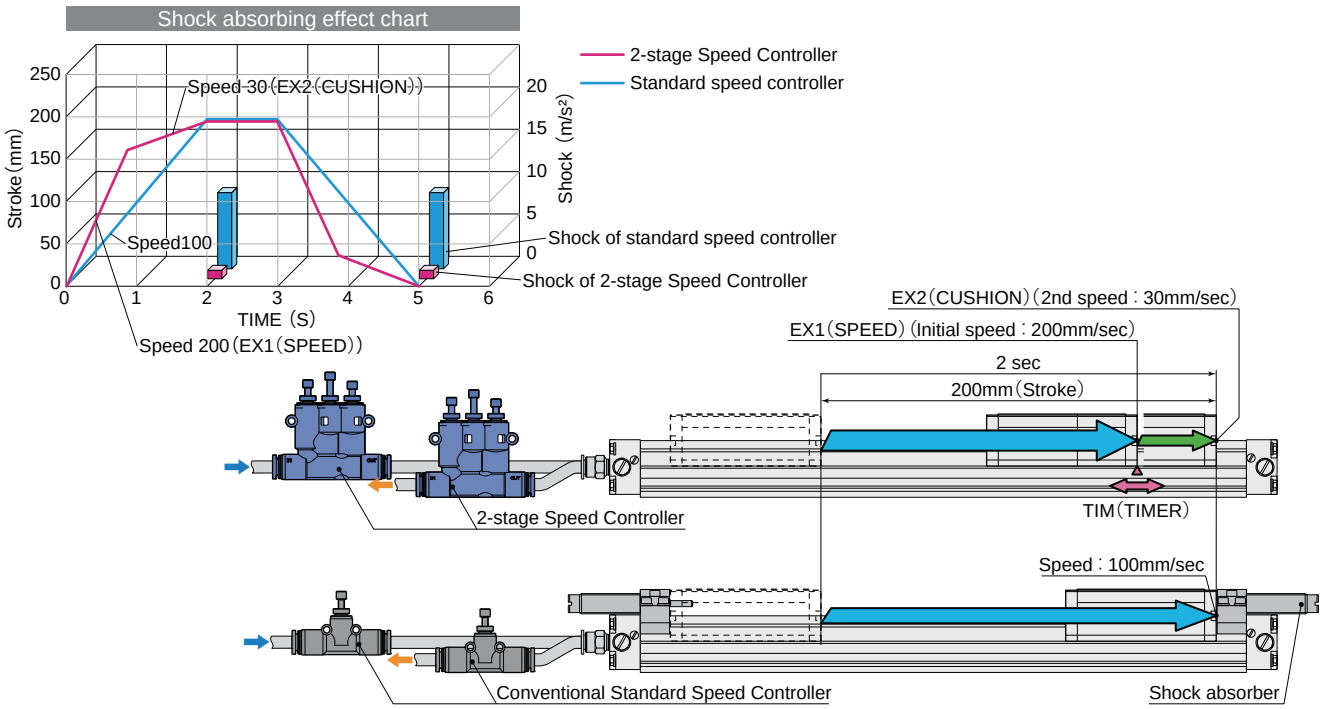
Feature

Shock absorber is not required.

With realized 2-stage exhaust flow adjustment, a similar control as a shock absorber becomes possible.

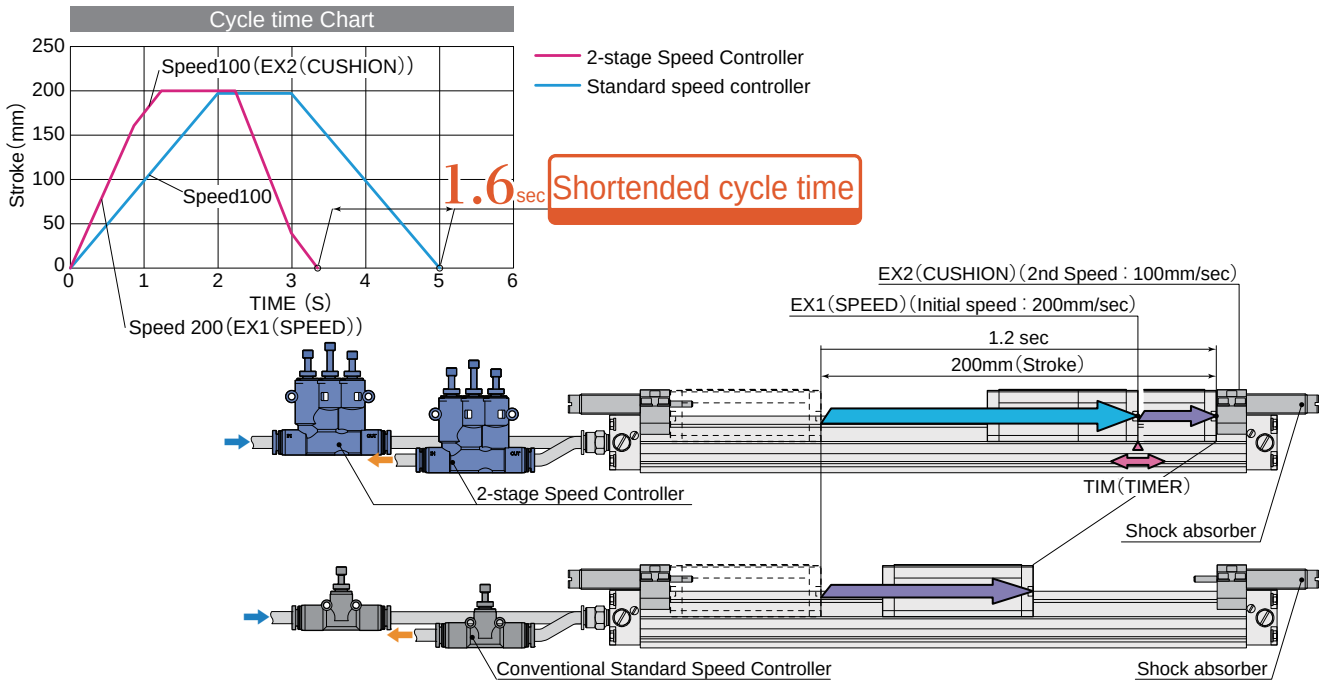
Adjustment of shock absorbing property is possible by the adjustment of 2nd speed (EX2 (CUSHION)) flow rate.

2-stage speeds can be controlled by individual needles.
e.g. Reducing the shock to 1/9 (reducing speed to 1/3) while keeping the same cycle time.



It is possible to shorten traveling (cycle) time as long as conventional shock absorbing (cushion) property is same.*

*Conventional shock absorbing property means shock absorbing by reducing the cylinder speed by a cylinder mounting type shock-absorber near the stroke end.
e.g. Actuate 80% of cylinder stroke at the speed of twice as fast as the regular speed of a conventional standard speed controller, then actuate the last 20% of the stroke at the regular speed.



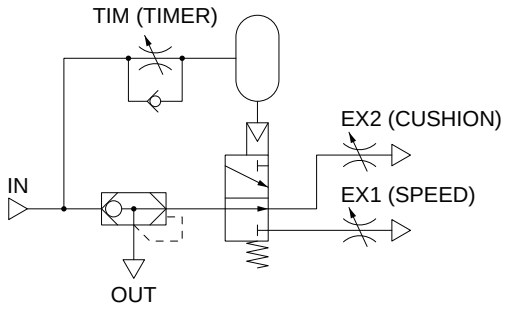
Speed shift timing is adjustable.

The speed shifting (brake) timing from EX1 to EX2 can be set at the position where the shock absorber does not work.
Intermediate stop of cylinder is possible.

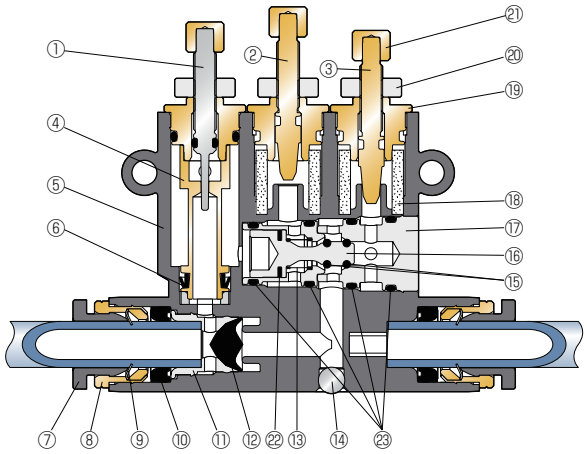
Specification

Fluid medium	Air
Operating pressure range	0.2~1.0MPa
Operating temp. range	0~60℃（No freezing）

Pneumatic Symbol

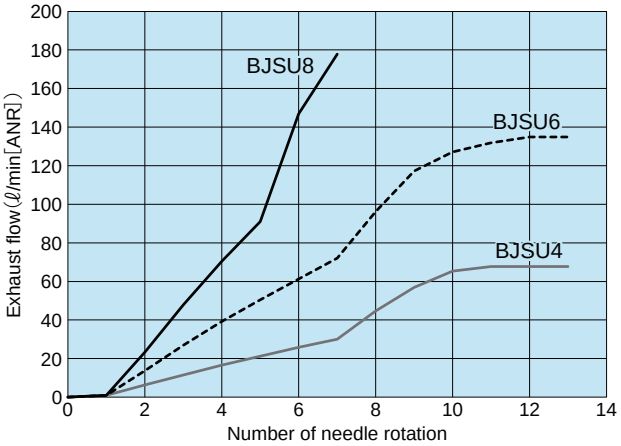


Construction



No.	Part	Material
①	Timer (TIM) needle	Special stainless steel
②	Speed (EX1) needle	Electroless nickel-plated brass
③	Cushion(EX2) needle	Electroless nickel-plated brass
④	Inner ring	Electroless nickel-plated brass
⑤	Resin body	PBT
⑥	Diaphragm	HNBR
⑦	Release-ring	POM
⑧	Guide-ring	Electroless nickel-plated brass
⑨	Lock-claws	Stainless steel
⑩	Elastic-sleeve	NBR
⑪	Valve retainer	Aluminum
⑫	Valve element	HNBR
⑬	Spring	Stainless steel
⑭	Stopper ball	Stainless steel
⑮	Main spool O-ring	HNBR
⑯	Main valve spool	Aluminum
⑰	Main spool guide	Aluminum
⑱	Silencer	PVF
⑲	Needle guide	Electroless nickel-plated brass
⑳	Lock nut	Aluminum
㉑	Knob	Electroless nickel-plated brass
㉒	Spool seal packing	HNBR: BJSU4, NBR: BJSU6 & BJSU8
㉓	Fixed O-ring	NBR

Exhaust flow characteristic (Air supply：0.5MPa)



Model Designation (Example)

BJS ① U ② 4 ③

③.Tube dia.

Code	4	6	8
Metric(㎜)	ø4	ø6	ø8
Inch	ø5/32	-	ø5/16
Applicable max. cylinder bore (㎜)	ø20	ø25	ø32

※The above max. cylinder bore sizes are configured for the condition of 0.5MPa air supply and cylinder speed of 500mm/sec.

②.Type

Code	U
Type	Union Straight

①. 2-stage Speed Controller

Detailed Safety Instruction

⚠Warning

Adjust a speed of an actuator by referring to Speed adjusting method(Page.4).
Inappropriate procedure may result in rapid action or jumping out of an actuator under incorrect procedure.

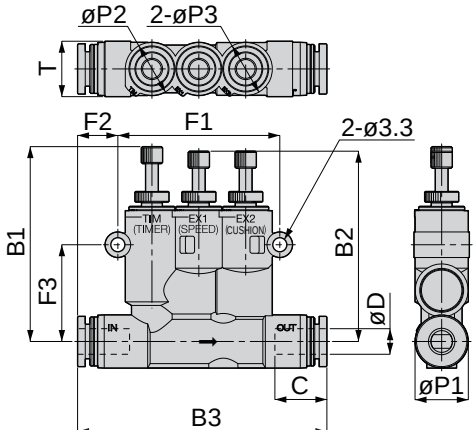
⚠Cautions

1. Since the speed controllers is designed to tolerate some leakage, avoid using on an application requiring complete air-tightness.
2. During braking (shock absorbing) process, thrust of a cylinder is reduced by back pressure till the residual air in cylinder is exhausted completely.
3. Air leak around a cylinder may affect the speed adjustment.
4. Do not block the exhaust ports during the adjustment and operation.

Outline Dimensional Drawing

BJSU Union Straight

CAD 2D&3D

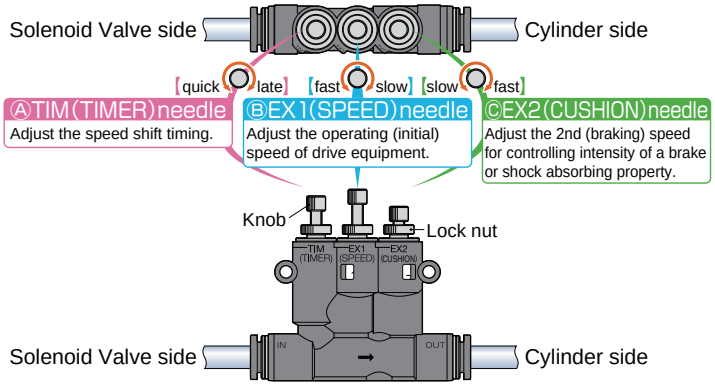


Unit：mm

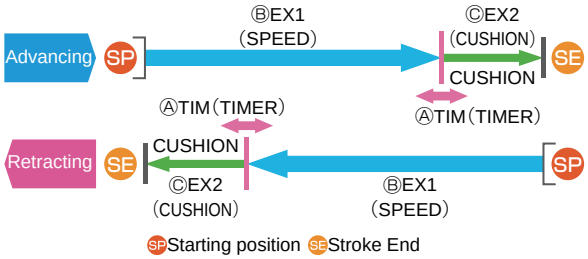
Model	Tube O.D.	B1		B2		B3	øP1	øP2	øP3	Tube end	F1	F2	F3	T	Eff. sect Area (㎟)			WT.	Price
	øD	max.	min.	max.	min.					C					IN→OUT	OUT→EX1	OUT→EX2	(g)	(¥)
BJSU4	4	38.3	35.7	37.1	34.4	51.1	10	10	10	14.9	32	9.2	18.9	10.4	2.6	1.0	1.0	21	4,500
BJSU6	6	45.7	42	44.7	40.8	58.5	12.5	12.5	12.5	17	38	9.5	22.7	13	4.5	2.0	2.0	33	4,700
BJSU8	8	52.5	48.8	52	49	65.6	14.5	12.5	14.5	18.1	43	11.1	29.5	15	5.0	2.6	2.6	52	4,900

Speed adjusting method

Function of each needle



Controlling details



Speed adjusting method

① Install the product. Connect tube from cylinder port to the OUT side of the product.
② Before carrying out the speed adjustment, fully open TIM and EX1 needles by turning them couterclockwise and completely close EX2 needle by turning it clockwise.
③ Adjust the 2nd (braking) speed with EX2 needle. Actuate the cylinder by gradually opening the EX2 needle so that the piston moves and reaches to stroke-end. Tighten the lock nut while holding the needle head in order not to change the adjusted speed.
④ Adjust the shift (brake) timing with TIM needle. Close TIM needle gradually so that the break (shock absorber function) works near the stroke end. Do not turn the TIM needle to near full close position or close the needle quickly from full open positon, otherwise speed shifting effect (brake or shock absorbing function) does not work.
⑤ When decelerate the operating speed of the cylinder, adjust EX1 needle and readjust the timing of speed shift (brake) again.
⑥ Fine-tune all of the needles. Then tighten the lock nuts firmly while holding the needle heads of TIM and EX1 in order not to change the adjusted setting.

Tips for the adjustment

- Fix the pressure and the length of tube before adjusting these needles, so that the setting of this product will not be affected.
- As for speed adjusting process①~③, adjust two controlles together at the both sides of the cylinder, then adjust them separately for process ④ ~ ⑥.
- Completely open EX1 needle (accelerate cylinder) and nearly completely close EX2 needle (strengthen a brake), when the timing of a brake is difficult to sense.
- Adjust the timing of a break with sufficient distance from the stroke end.
- Adjust all needles over again if encountering a problem.

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