

# Booster Relay

## Series IL100

- Used when the piping distance between instrumentation and operational area is long, or when operational area has large capacity.
- Can help accelerate actuation speed considerably.

### How to Order

IL 100 - [ ] 02 [ ] - [ ]

Booster relay

#### Thread type

Nil	Rc
N	NPT*
F	G*

\* Semi-standard

#### Port size

02	1/4
03	3/8

#### Suffix

Nil	Standard
T	High temperature (-5 to 100°C)
L	Low temperature (-30 to 60°C)
S	Copper-free
ST	Copper-free/ High temperature (-5 to 100°C)
SL	Copper-free/ Low temperature (-30 to 60°C)

#### Accessories

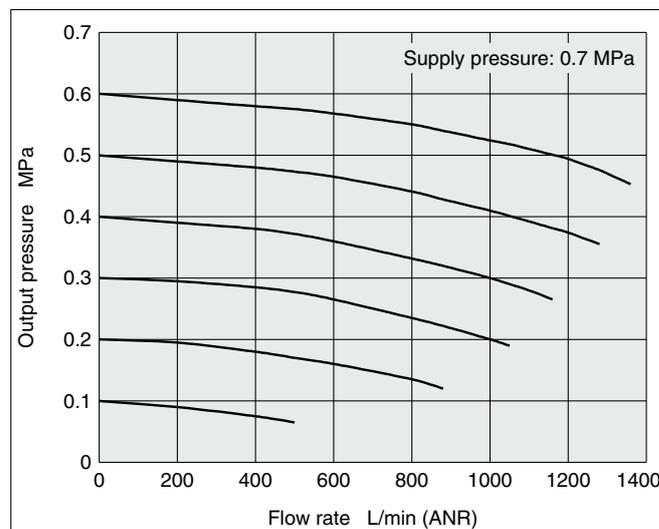
Nil	None
B	With bracket



### Standard Specifications

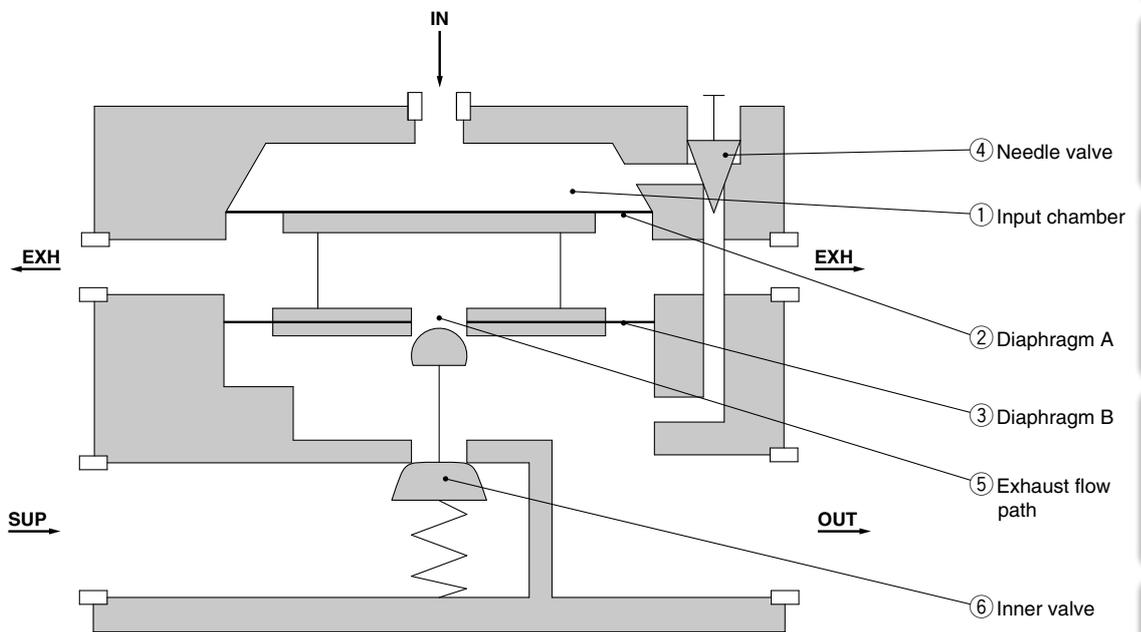
Supply pressure	Max. 1.0 MPa
Input pressure	Max. 0.7 MPa
Output pressure	Max. 0.7 MPa
Pressure ratio	1 : 1
Air consumption	3 L/min (ANR) or less (OUT = 0.5 MPa)
Linearity	Within ±1%
Hysteresis	Within 1%
Ambient and fluid temperature	-5 to 60°C
Port size	1/4, 3/8
Weight	0.56 kg

### Flow-rate Characteristics



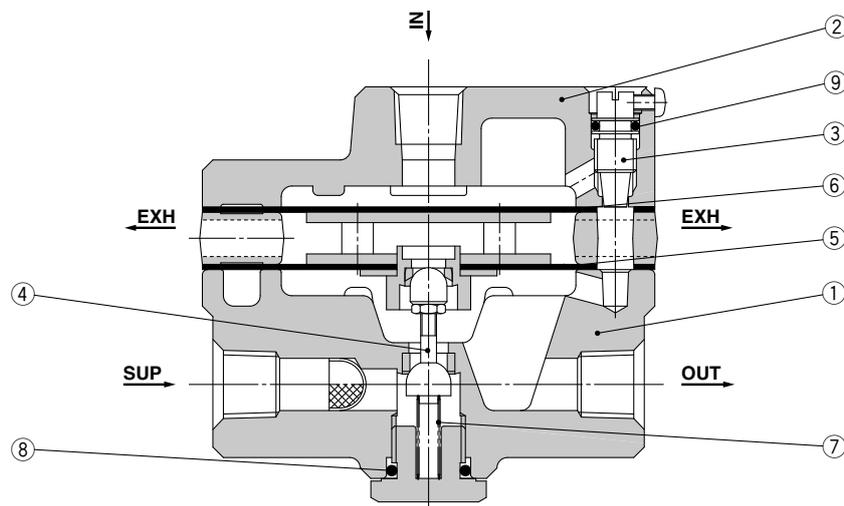
## Principle of Operation

### IL100



Signal pressure enters the input chamber ① and diaphragm A ② and exerts a downward force on diaphragm B ③. When the force of the input chamber ① exceeds the force of diaphragm B ③, inner valve ⑥ is inserted allowing air flow out the secondary supply port. On signal pressure exhaust the supply valve closes and exhaust flow path ⑤ is opened to allow vent of the secondary air supply to atmosphere. Input and output ports are connected by a needle valve ④. Adjustment ensures that exact equalization occurs between the signal and output supply. The above function allows a low volume signal to provide high volume output with pressure ratio remaining (1:1) for signal to output.

## Construction



### Component Parts

No.	Description	Material	Note
1	Valve	Aluminum alloy	Silver baking finish
2	Cover	Aluminum alloy	Silver baking finish
3	Throttle valve	Stainless steel	
4	Inner valve	Stainless steel	
5	Diaphragm assembly	Aluminum alloy/NBR/Resin	Chromated
6	Diaphragm	NBR	
7	Valve spring	Stainless steel	
8	O-ring	NBR	
9	O-ring	NBR	

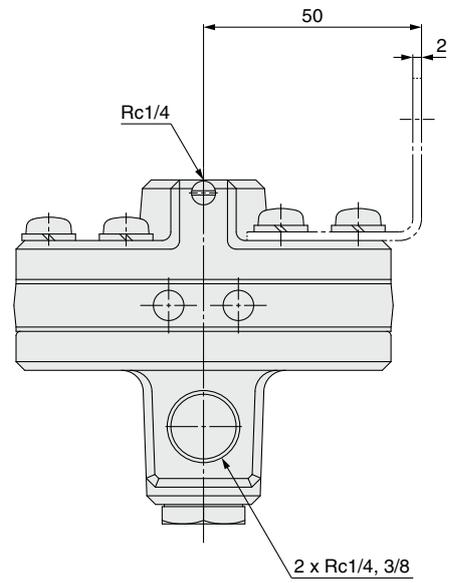
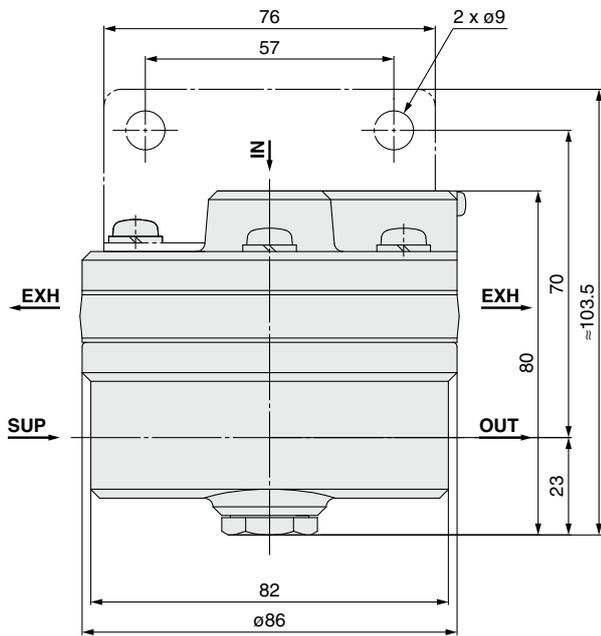
### Replacement Parts

Model	Order no.	Contents
IL100	KT-IL100	Set of left nos. ⑤, ⑥, ⑦, ⑧, ⑨

# Series IL100

## Dimensions

### IL100



# Large Size Booster Relay



● Maximum flow rate:  
Approx.  
**6000 L/min (ANR)**

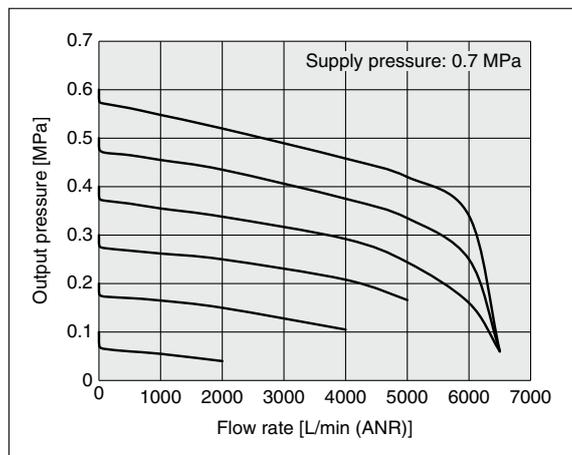
Thread type:  
Rc, NPT



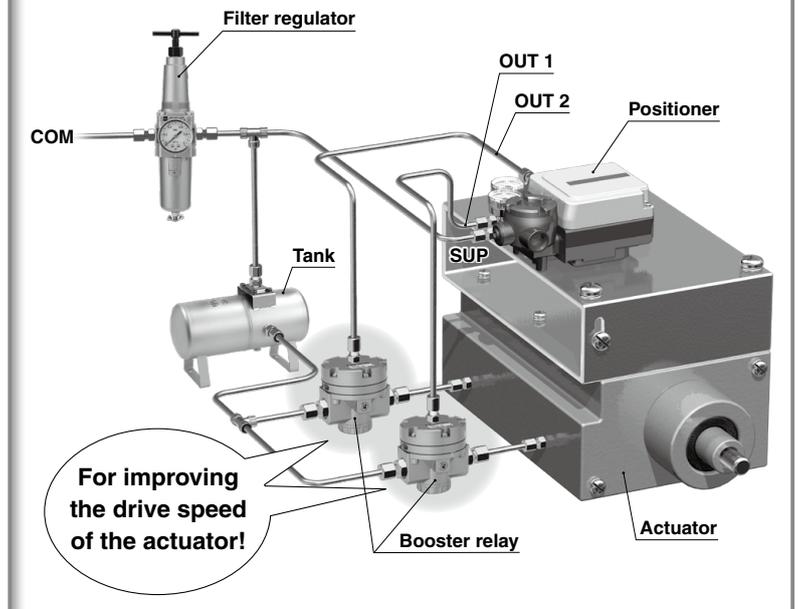
● Fluid temperature

Specification	Temperature range [°C]			
General	-30	-5	60	100
High temperature				
Low temperature				

● Flow-rate characteristics



Application Example



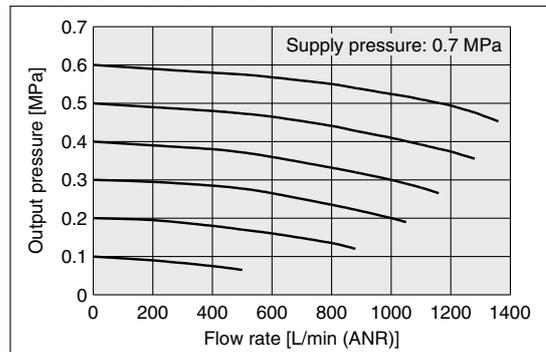
Related Equipment

\* For details, refer to the WEB catalog.

Booster Relay  
Series IL100



Flow-rate Characteristics



Specifications

Supply pressure	Max. 1.0 MPa
Input pressure	Max. 0.7 MPa
Output pressure	Max. 0.7 MPa
Pressure ratio	1:1
Air consumption	3 L/min (ANR) or less (OUT = 0.5 MPa)
Linearity	Within ±1%
Hysteresis	Within 1%
Ambient and fluid temperature	-5 to 60°C
Port size	1/4, 3/8
Weight	0.56 kg

Series **XT240**



14-E635

# Series XT240



## How to Order

XT240-1-

### Fluid temperature\*

	Temperature specification
1	For general environments (-5 to 60°C)
2	For high temperature environments (-5 to 100°C)
3	For low temperature environments (-30 to 60°C)

### Thread type

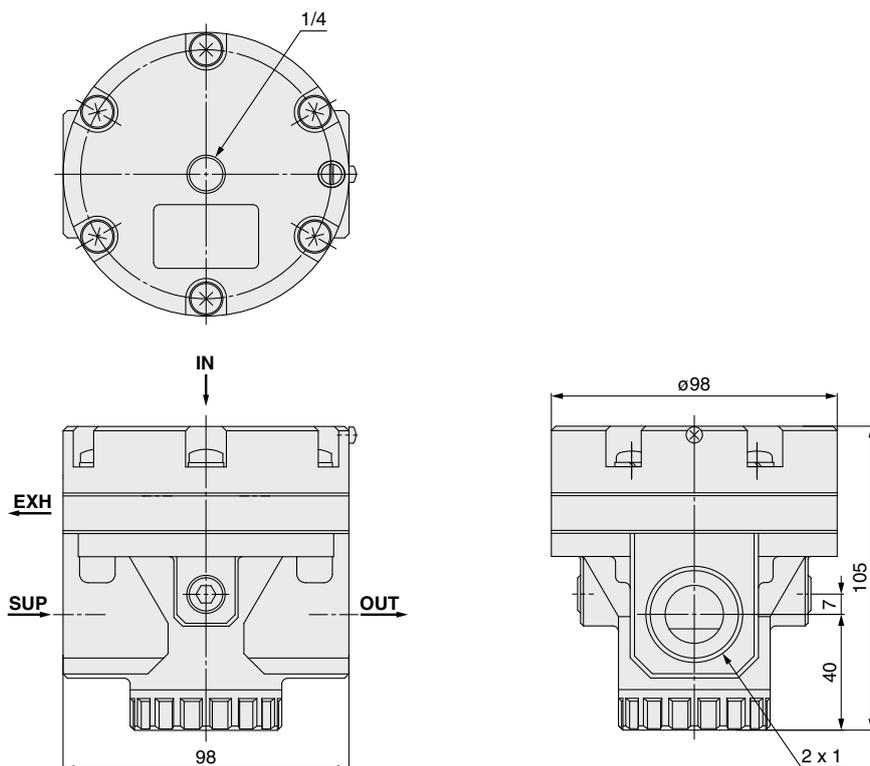
Nil	Rc
NX	NPT

\* Please consult with SMC for -40°C specification.

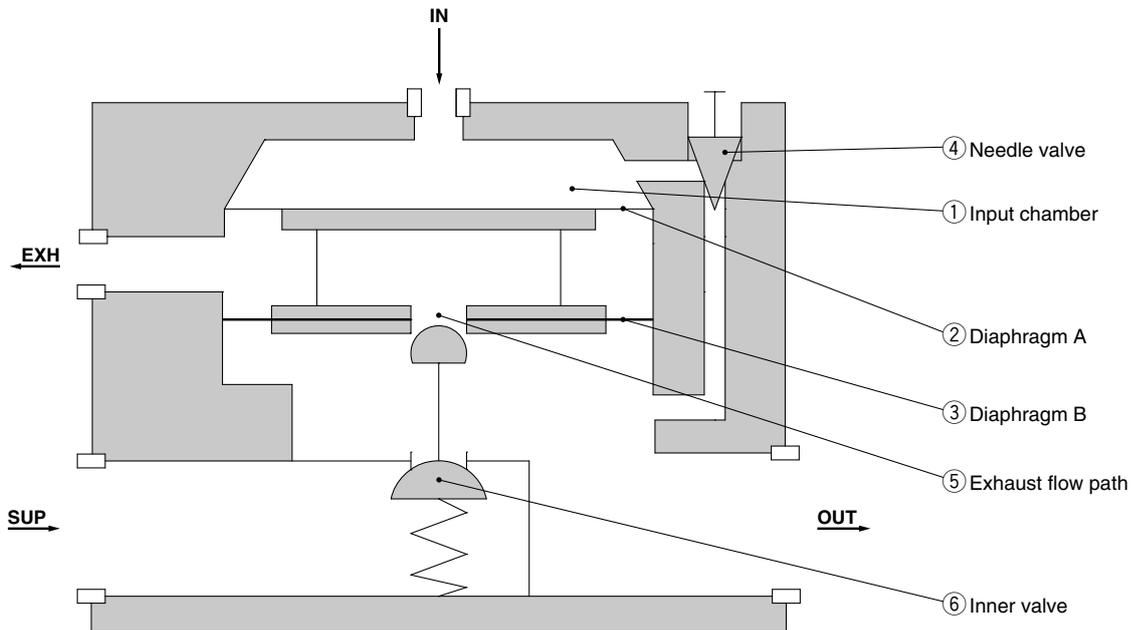
## Specifications

Supply pressure	Max. 1.0 MPa	
Input/Output pressure	Max. 0.7 MPa	
Air consumption	10 L/min (ANR) or less (OUT = 0.7 MPa)	
Linearity	Within ±5%	
Hysteresis	Within 2%	
Ambient and fluid temperature	For general environments	-5 to 60°C
	For high temperature environments	-5 to 100°C
	For low temperature environments	-30 to 60°C
Port size	1/4 (IN), 1 (SUP, OUT)	
Weight	1.2 kg	

## Dimensions

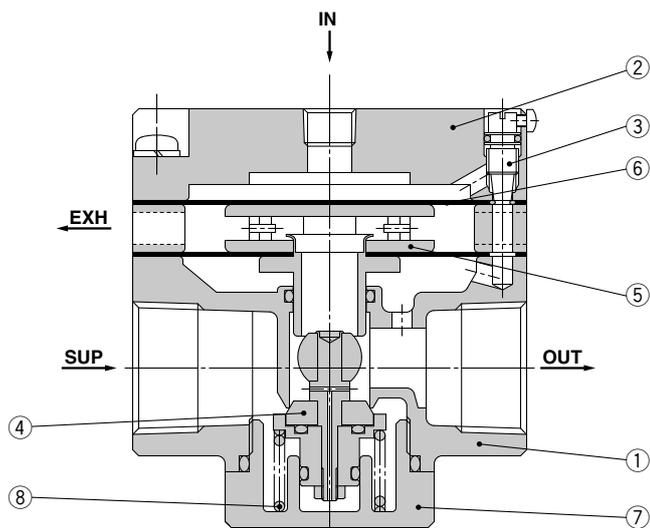


## Principle of Operation



Signal pressure enters the input chamber ① and diaphragm A ② exerts a downward force on diaphragm B ③. When the force of the input chamber ① exceeds the force of diaphragm B ③, inner valve ⑥ is depressed allowing air flow out the secondary supply port. On signal pressure exhaust, the supply valve closes and exhaust flow path ⑤ is opened to allow exhaust of the secondary air supply to atmosphere. Input and output ports are connected by the needle valve ④. Adjustment ensures that exact equalization occurs between the signal and output supply. The above function allows a low volume signal to provide high volume output with pressure ratio remaining (1:1) for signal to output.

## Construction



### Component Parts

No.	Description	Material	Note
1	<b>Body</b>	Aluminum alloy	Platinum silver
2	<b>Input pressure part cover</b>	Aluminum alloy	Platinum silver
3	<b>Restrictor</b>	Stainless steel	
4	<b>Valve assembly</b>	Brass/Stainless steel/ Fluororesin/NBR	XT240-1
		Brass/Stainless steel/ Fluororesin/FKM	XT240-2
		Brass/Stainless steel/Fluororesin/ Low-temperature NBR	XT240-3
5	<b>Diaphragm assembly</b>	Aluminum alloy/ Stainless steel/NBR	Chromated/XT240-1
		Aluminum alloy/ Stainless steel/FKM	Chromated/XT240-2
		Aluminum alloy/Stainless steel/ Low-temperature NBR	Chromated/XT240-3
6	<b>Diaphragm</b>	NBR	XT240-1
		FKM	XT240-2
		Low-temperature NBR	XT240-3
7	<b>Valve guide</b>	Aluminum alloy	Platinum silver
8	<b>Valve spring</b>	Stainless steel	

 **Safety Instructions** Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before use.