Air Management System

New

Sustainability – Condition Based Maintenance - Digitalization

Standby regulator

Switch pressure between operation and standby

Air management hub

Flow rate, pressure, and temperature sensing

Residual pressure relief valve

Secondary air supply or exhaust (shut-off) switching

Wireless adapter (Optional Accessories)

Air consumption: Max. 62%*1 reduction p. 1

*1 In SMC conditions:
Maximum reduction ratio within product specifications
(at 0.7 MPa operating pressure and 0.2 MPa low pressure)

Monitors the machine standby conditions (when production stops) and automatically decreases the pressure.
Reduces unnecessary air consumption

Compatible with OPC UA p. 2

Direct connection enables data communications.

Compatible with PROFINET and EtherNet/IP

Compatible with wireless systems p. 3

- Communication cables not required
- High security thanks to unique encryption
- Communication distance: Max. 100 m

Video

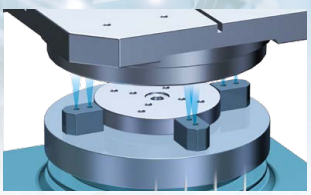
AMS20/30/40/60 Series

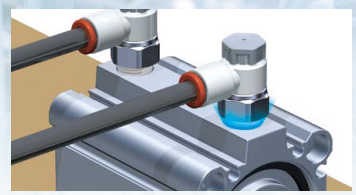
SMC

CAT.ES100-155A

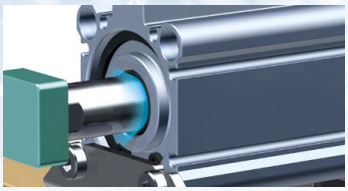
Why not reduce the wasted air generated by your factory equipment?

Blow and purge consumption required for functionality.





Leakage from piping connection due to aging



Leakage from cylinder due to worn seals

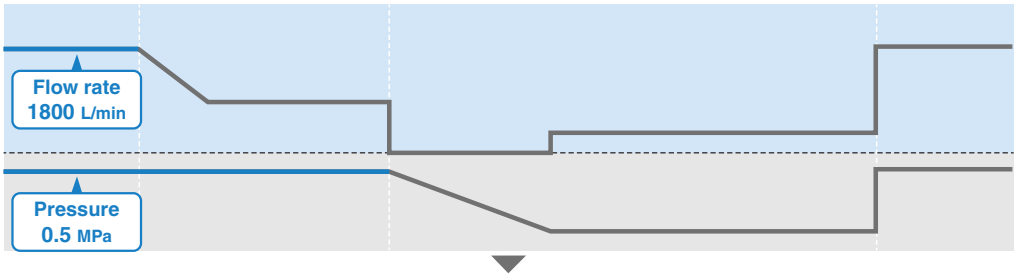
Reduced air consumption due to lower pressure during production stoppages/equipment standby Standby mode

Example Under equipment operating conditions: Pressure 0.5 MPa, air consumption 1800 L/min and idle air consumption 200 L/min, then Standby Mode can apply low pressure setting 0.2 MPa to equipment.

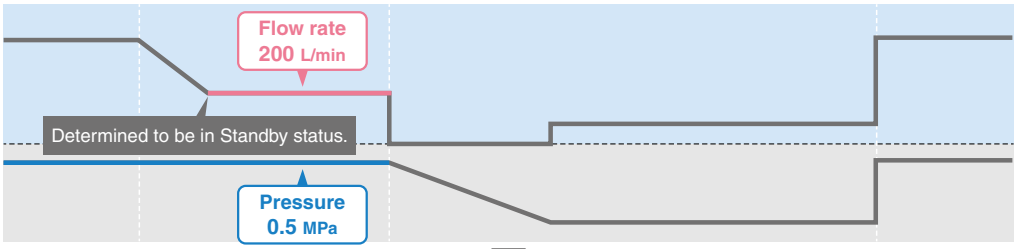
>>>>>>>>>>>>>> Transition of equipment operating status >>>>>>>>>>>>>>

Machine operating	Equipment standby status (before/after process stoppage, break time, during production stoppage, etc.)		Machine operating
	Standby status being determined.	Standby mode	

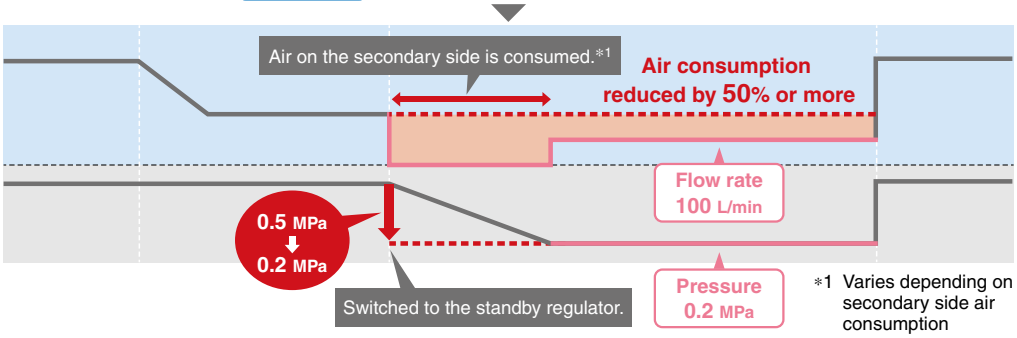
Senses changes in equipment condition



Detects decrease of flow during equipment standby.



Provides minimum required pressure during standby to reduce air consumption



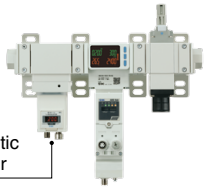
*1 Varies depending on secondary side air consumption

Two types of standby regulators available

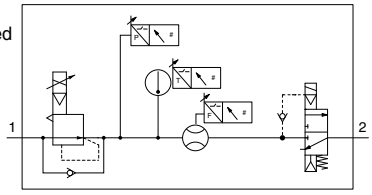
Automatically switches to low pressure when flow rate falls below the set value.

Electro-Pneumatic Regulator Type (ITV Series)/AMS20A/30A/40A/60A Series

Pressure can be set and switched when equipment is running/stopped



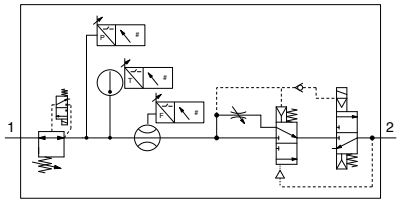
Electro-pneumatic regulator



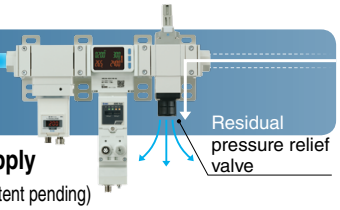
Regulator Type (ARS Series)/AMS20B/30B/40B/60B Series

Pressure can be set and switched when equipment is stopped

Regulator



Reduce air consumption by shutting off valves depending on equipment shutdown conditions Isolation mode



Residual pressure exhaust valve allows further reduction of air consumption by shutting off the air supply

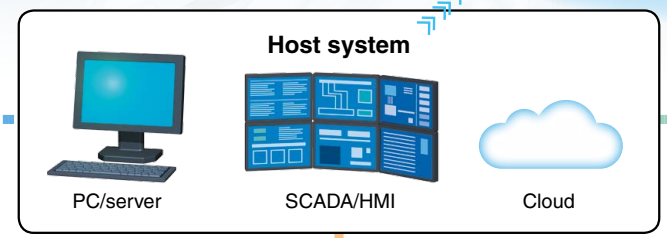
Equipped with automatic-isolation mode that can be shut off after set-up setting times from standby mode (patent pending)

Allows visualization of production equipment status



Equipment status can be monitored from another location or from outside the office.

"Flow rate," "pressure," and "temperature" as well as various sensor information can be communicated to host system via Industrial Ethernet or OPC UA.



Via PLC

PLC

EtherNet/IP

PROFINET

Direct connection

OPC UA direct connection

OPC UA

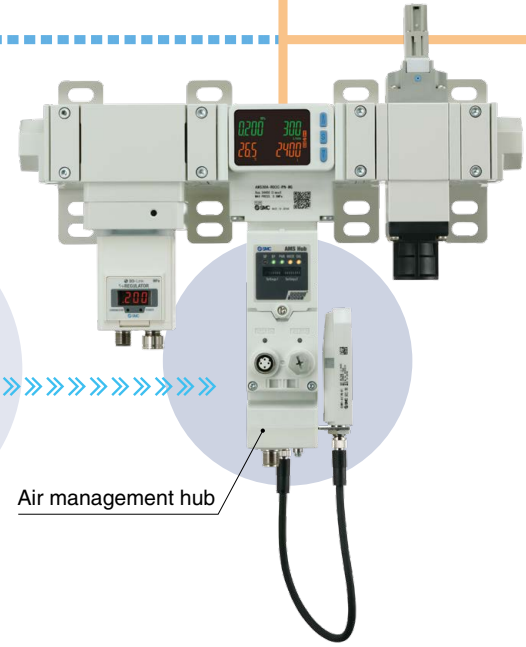
Direct connection

Via server/Gateway


Edge server IoT gateway

Direct connection

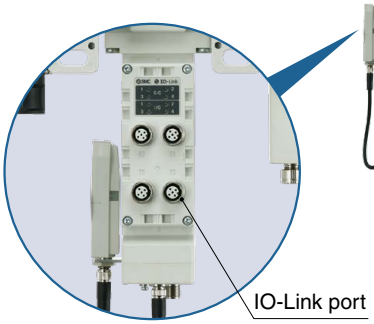
OPC UA



OPC UA(OPC Unified Architecture) is an open communication standard that can easily exchange data with a host system and link information directly without going through PLC (Programmable Logic Controller), and has been internationally standardization (IEC62541). It is also recommended for the Communications layer in the Industry 4.0 Reference Architecture.

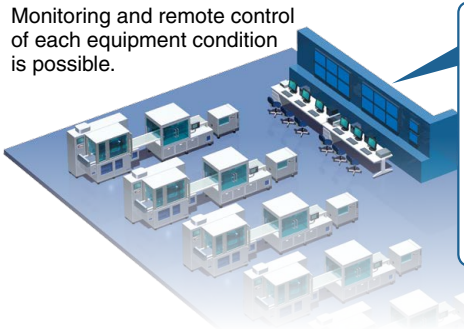
IO-Link compatible

Layout for IO-Link port on the back of the air management hub

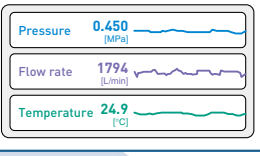


Air Management System Examples of IoT applications enables by

Monitoring and remote control of each equipment condition is possible.



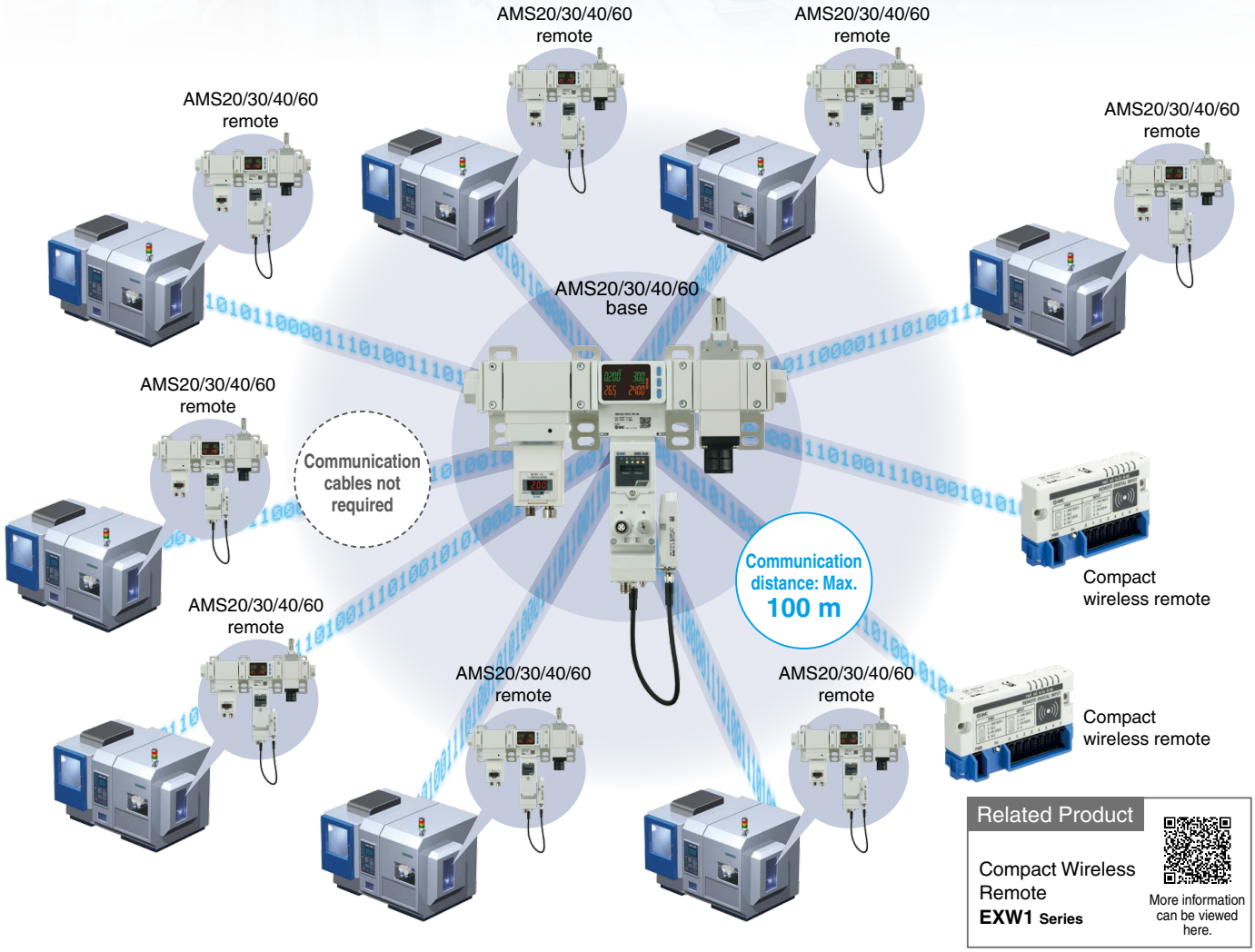
Transmission of "pressure," "flow rate," and "temperature" information possible



Compatible with wireless systems*

* When connecting a wireless adapter (sold separately)

- Communication cables not required
  Reduced wiring work, space, and cost
  Minimized disconnection risk
- Connectivity to up to 10 remotes (AMS20/30/40/60 or small wireless devices)



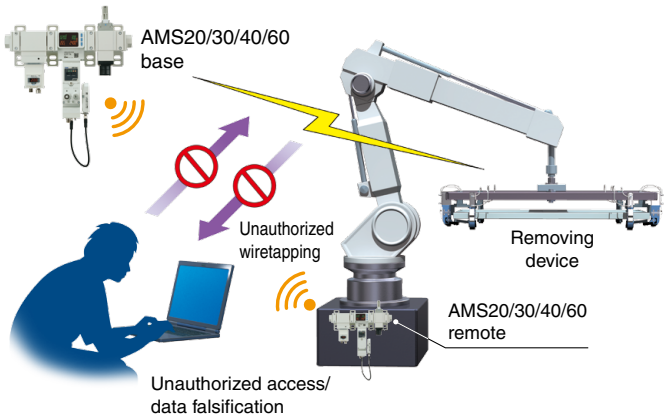
Related Product

Compact Wireless Remote
EXW1 Series

More information can be viewed here.

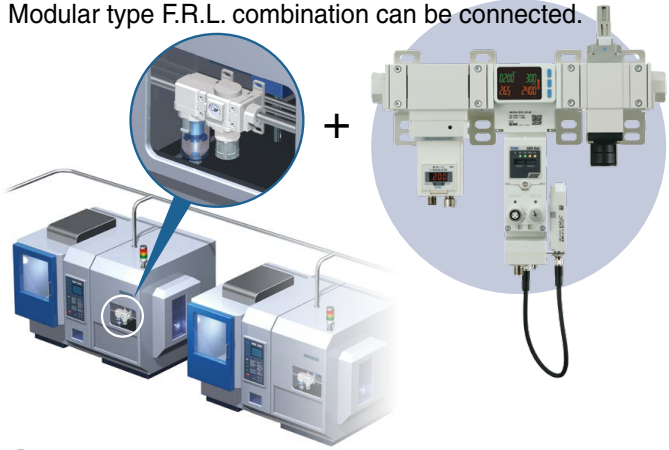
High security using encryption

Unauthorized access from outside is prevented by using data encryption.

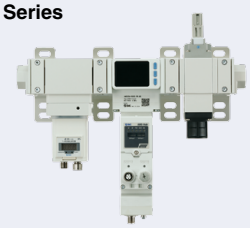
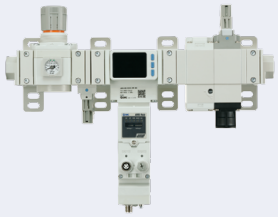


Can be retrofitted to existing equipment

With OPC UA and wireless systems, it can be introduced without connection to PLC and changing the programming. Modular type F.R.L. combination can be connected.



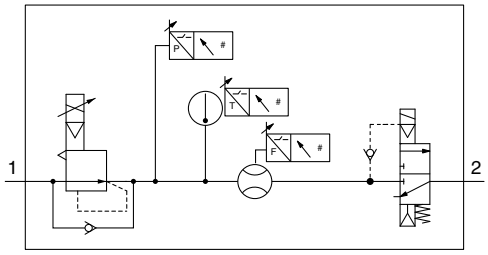
System Configuration

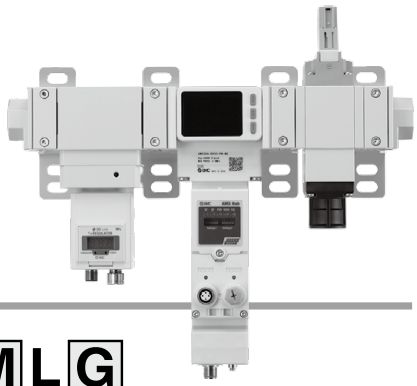
Series	Size	Port size	Flow capacity [L/min]	Communication protocol	Output data
		1/8 1/4 3/8 1/2 3/4 1	5 10 20 40 500 1000 2000 4000		
Electro-Pneumatic Regulator Type **AMS20A/30A/40A/60A Series** 	20			PROFINET EtherNet/IP™ OPC UA	· Instantaneous flow · Accumulated flow · Pressure · Fluid temperature · Various sensor information transmitted via IO-Link · Diagnosis
	30				
	40				
	60				
Regulator Type **AMS20B/30B/40B/60B Series** 	20				
	30				
	40				
	60				

CONTENTS

Air Management System
Electro-Pneumatic Regulator Type
AMS20A/30A/40A/60A Series

Symbol





How to Order

AMS ❶ A – ❷ ❸ ❹ – ❺ – ❻ ❼

		Symbol	Description	❶ Body size			
				20	30	40	60
❷	Pipe thread type	R	Rc	●	●	●	●
		N	NPT	●	●	●	●
		F	G	●	●	●	●
		H	Without attachments	●	●	●	●
		+					
❸	Port size	01	1/8	●	—	—	—
		02	1/4	●	●	—	—
		03	3/8	—	●	●	—
		04	1/2	—	—	●	—
		06	3/4	—	—	—	●
		10	1	—	—	—	●
		00	Without attachments	●	●	●	●
		+					
❹	N.O./N.C.	C	N.C. (Normally closed)	●	●	●	●
		D	N.O. (Normally open)	●	●	●	●
		+					
❺	Protocol	SA	Standalone (When wireless adapter is connected: Wireless remote)	●	●	●	●
		PN	PROFINET, OPC UA (When wireless adapter is connected: Wireless base)	●	●	●	●
		EN	EtherNet/IP™, OPC UA (When wireless adapter is connected: Wireless base)	●	●	●	●
		+					
❻	Unit	K*1	EXA1/ITV: Units selection function	●	●	●	●
		M	EXA1/ITV: SI units only	●	●	●	●
		+					
❼	Manual override	G	Non-locking push type	●	●	●	●
		E	Push-turn locking type (Manual)	●	●	●	●

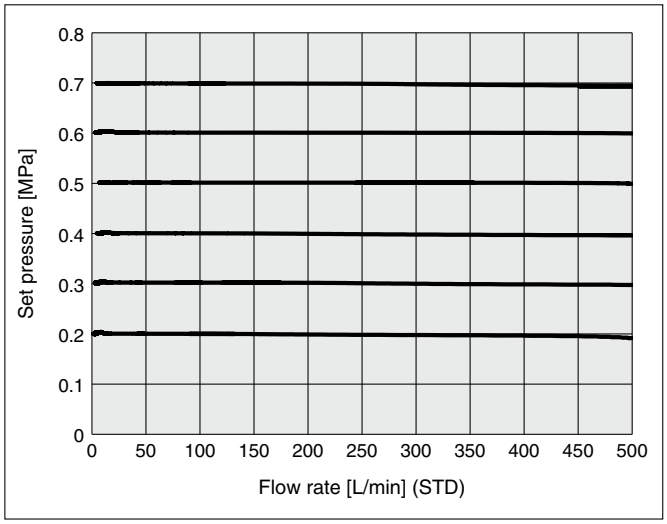
*1 Applies to overseas destinations only

Standard Specifications: Electro-Pneumatic Regulator Type

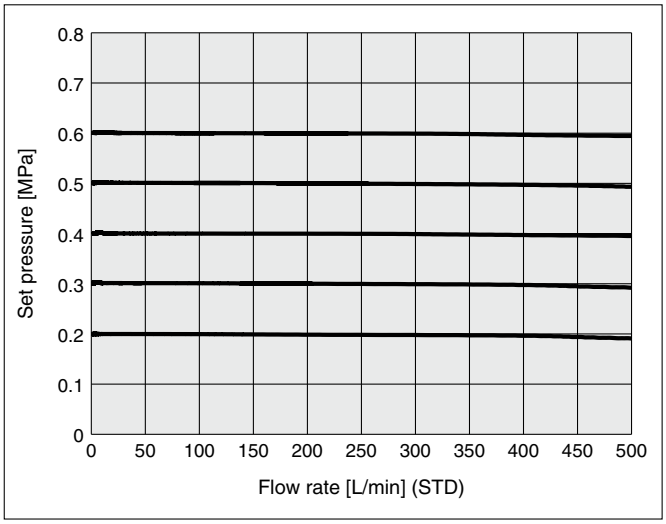
Model		AMS20A	AMS30A	AMS40A	AMS60A
Component	Standby electro-pneumatic regulator	ITV2050-20	ITV2050-30	ITV3050-40	ITV3050-60
	Air management hub	EXA1-20	EXA1-30	EXA1-40	EXA1-60
	Residual pressure relief valve	VP346E	VP546E	VP746E	VP946E
Port size		1/8, 1/4	1/4, 3/8	3/8, 1/2	3/4, 1
Fluid		Air			
Rated flow range		5 to 500 L/min	10 to 1000 L/min	20 to 2000 L/min	40 to 4000 L/min
Ambient and fluid temperatures		0 to 50°C			
Proof pressure		1.0 MPa			
Max. operating pressure		0.8 MPa			
Supply pressure range		0.3 to 0.8 MPa			
Set pressure range		0.2 to 0.7 MPa			
Standby pressure range		0.2 to 0.4 MPa			
Power supply voltage		24 VDC ±10%			
Current consumption		500 mA or less			
Input/Output		DI x 2 DI, DO IO-Link, DI			
Enclosure		IP65 (Electrical equipment part only)			

Flow Rate Characteristics (Representative values): AMS20A/Electro-Pneumatic Regulator Type

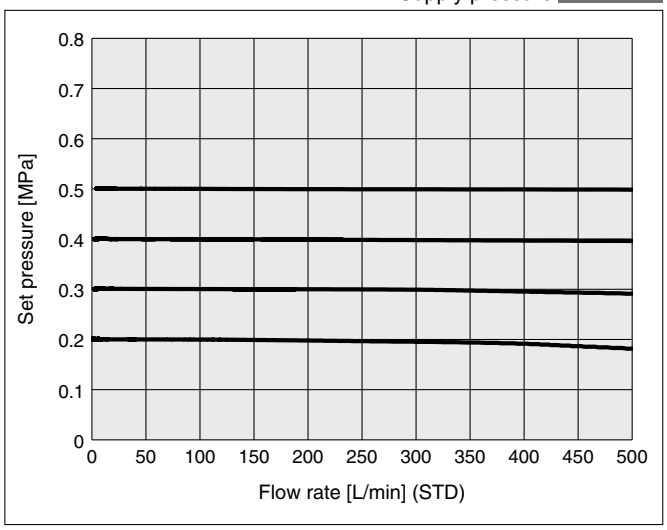
Supply pressure **0.8 MPa**



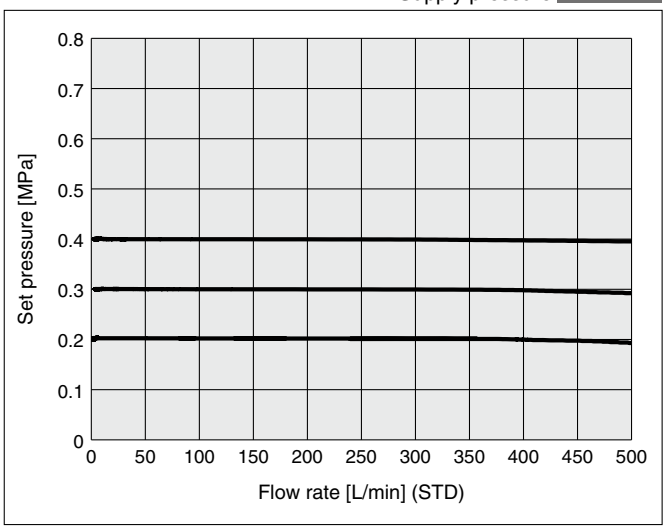
Supply pressure **0.7 MPa**



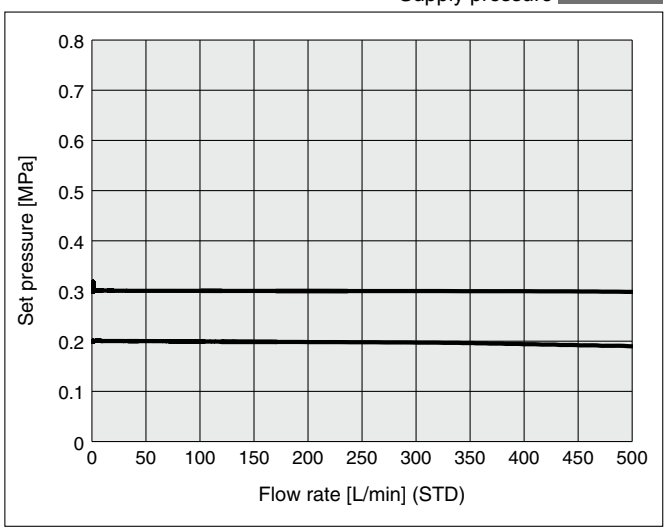
Supply pressure **0.6 MPa**



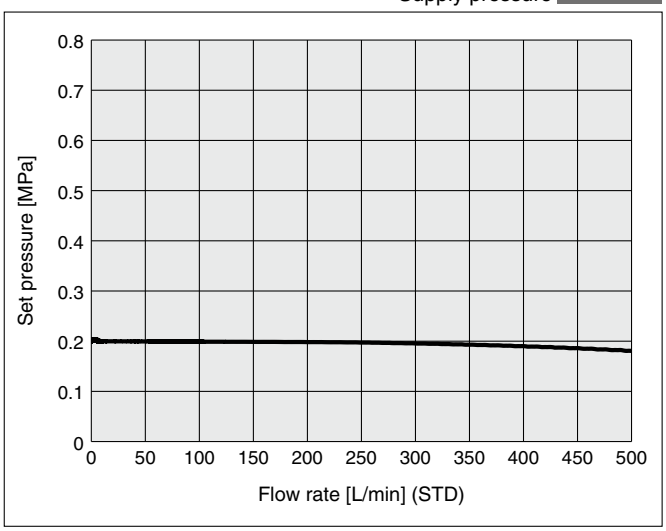
Supply pressure **0.5 MPa**



Supply pressure **0.4 MPa**

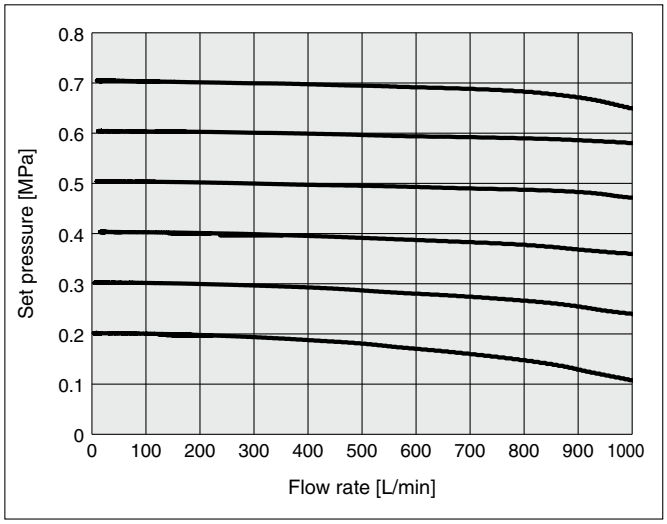


Supply pressure **0.3 MPa**

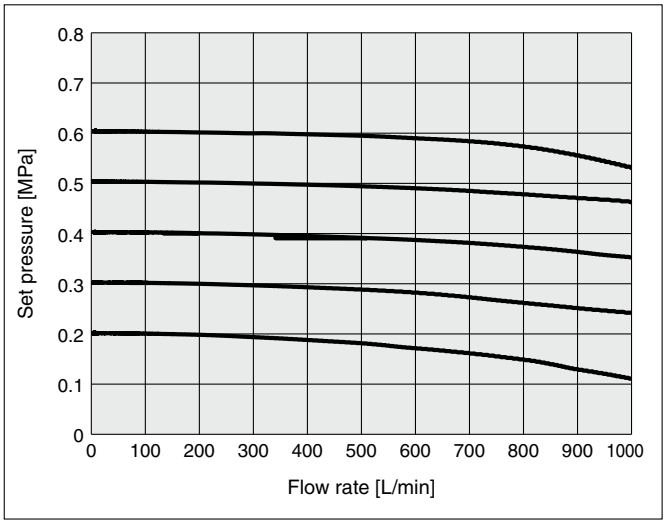


Flow Rate Characteristics (Representative values): AMS30A/Electro-Pneumatic Regulator Type

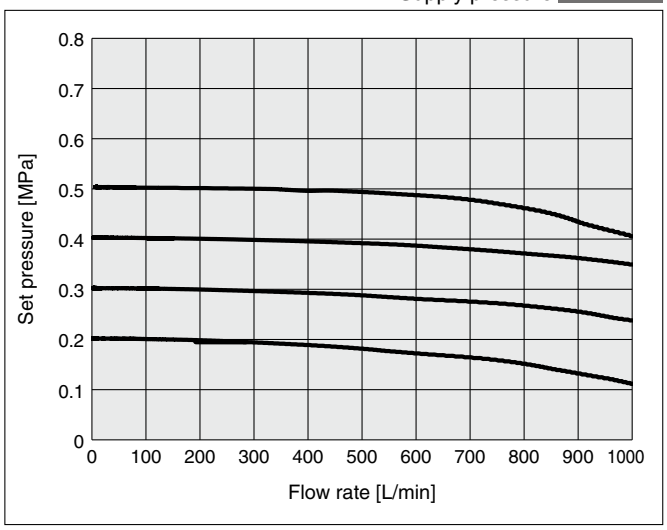
Supply pressure **0.8 MPa**



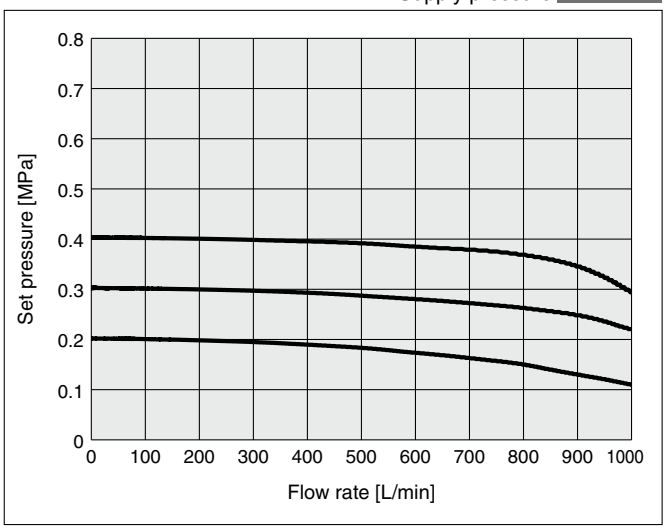
Supply pressure **0.7 MPa**



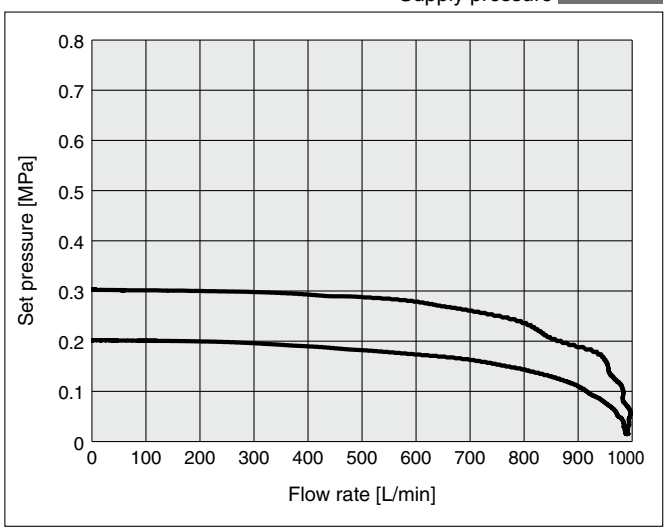
Supply pressure **0.6 MPa**



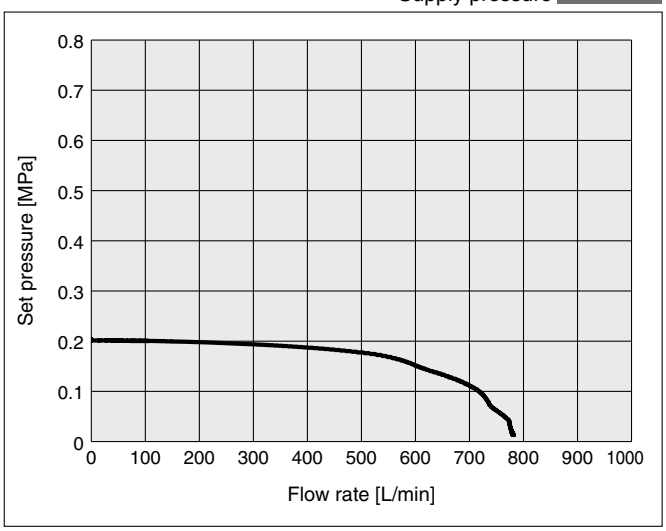
Supply pressure **0.5 MPa**



Supply pressure **0.4 MPa**

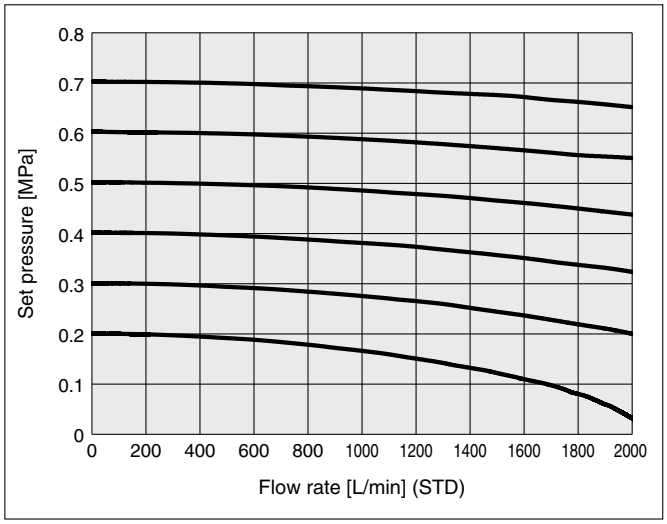


Supply pressure **0.3 MPa**

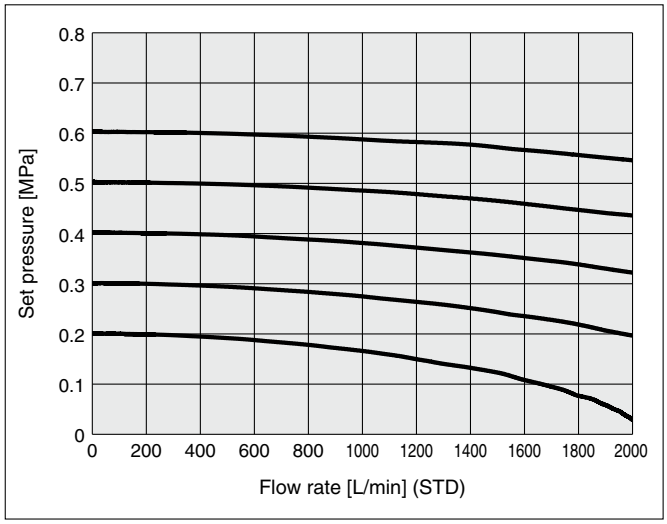


Flow Rate Characteristics (Representative values): AMS40A/Electro-Pneumatic Regulator Type

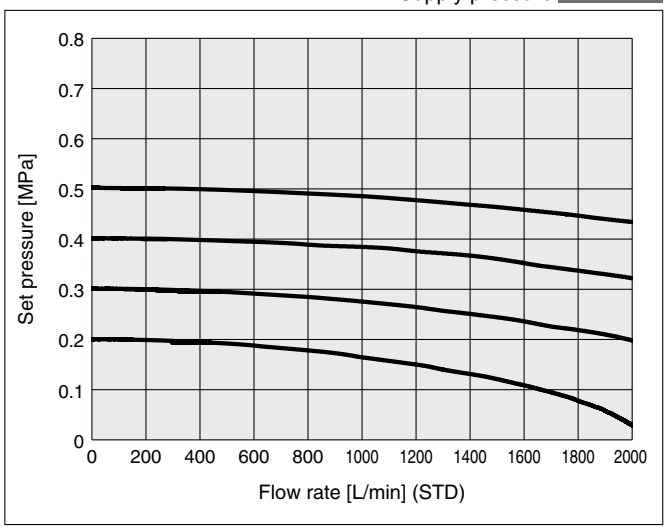
Supply pressure **0.8 MPa**



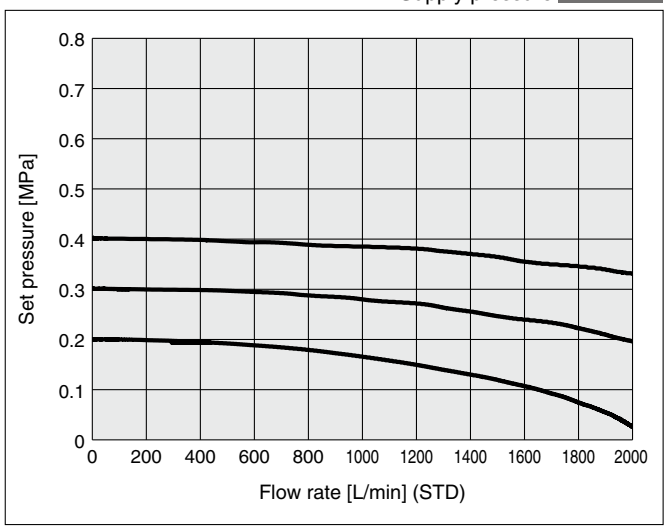
Supply pressure **0.7 MPa**



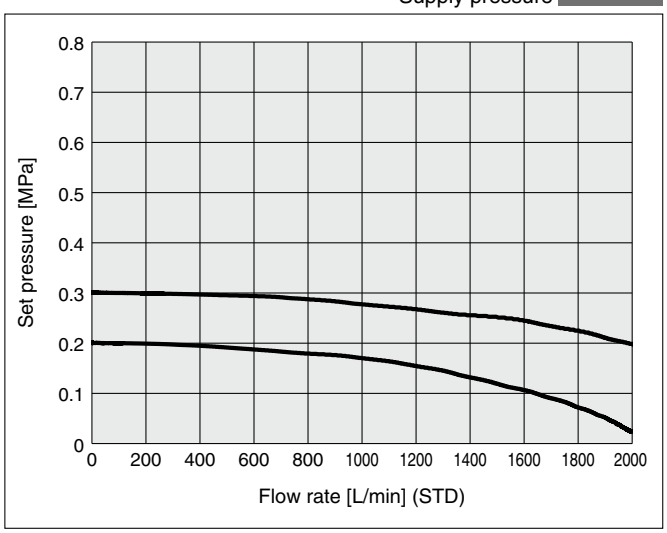
Supply pressure **0.6 MPa**



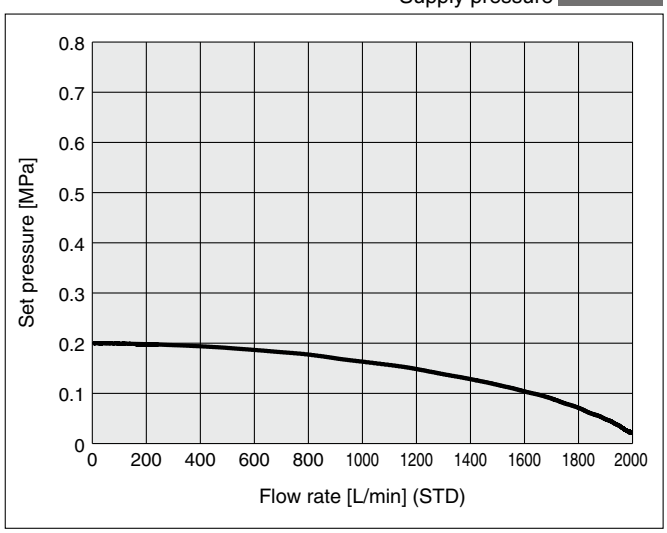
Supply pressure **0.5 MPa**



Supply pressure **0.4 MPa**

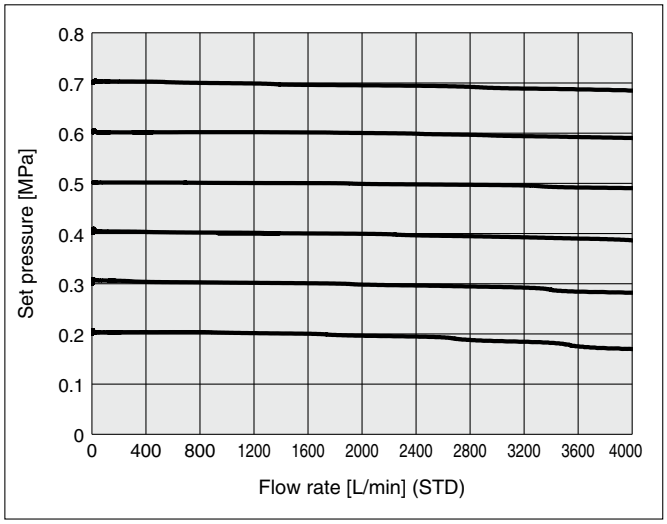


Supply pressure **0.3 MPa**

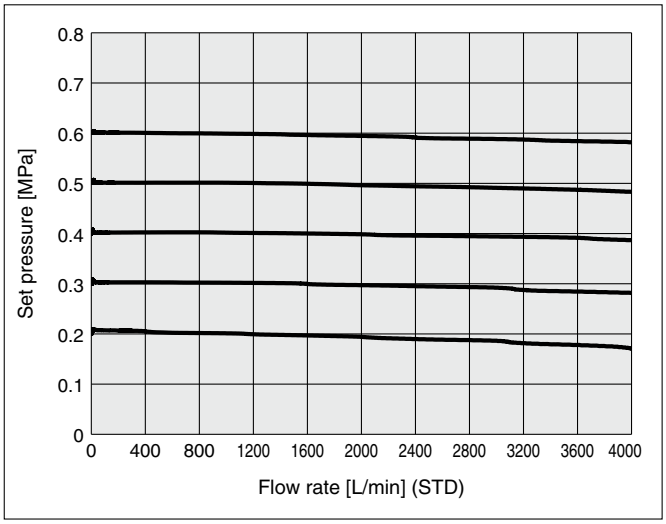


Flow Rate Characteristics (Representative values): AMS60A/Electro-Pneumatic Regulator Type

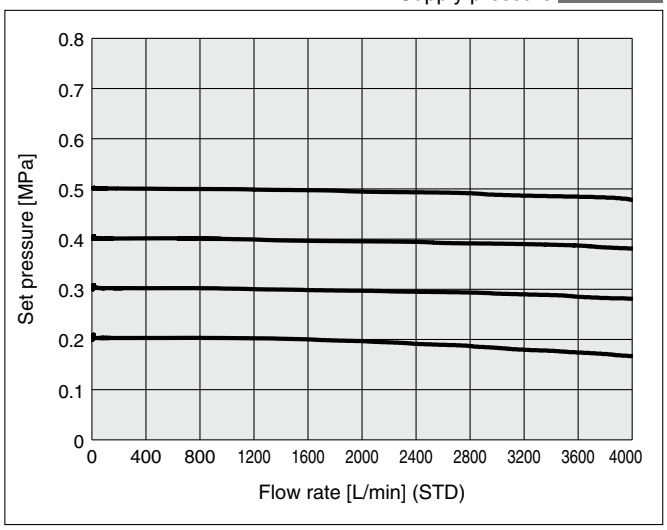
Supply pressure **0.8 MPa**



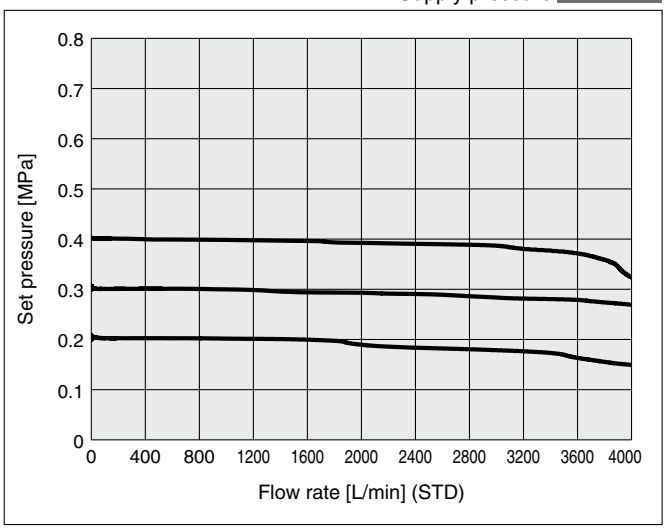
Supply pressure **0.7 MPa**



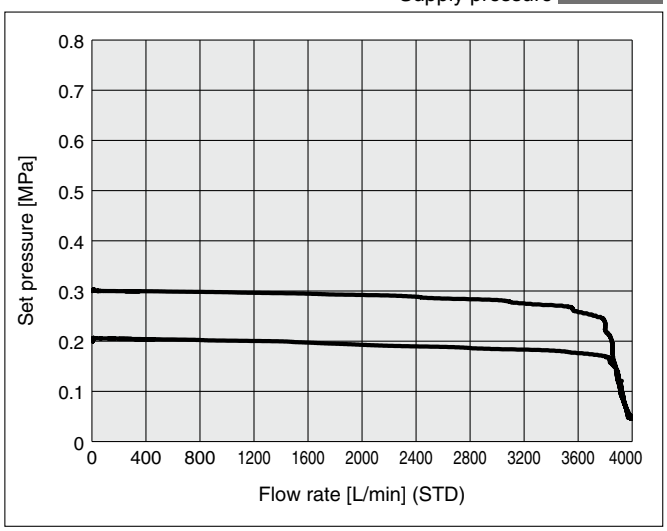
Supply pressure **0.6 MPa**



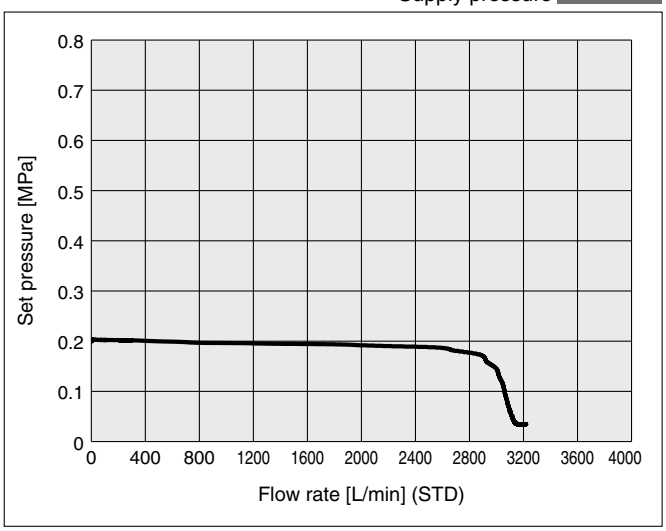
Supply pressure **0.5 MPa**



Supply pressure **0.4 MPa**

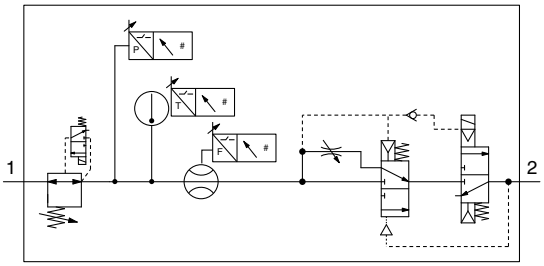


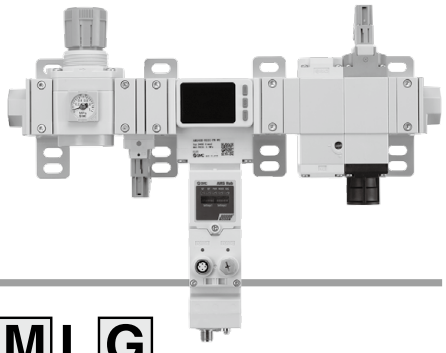
Supply pressure **0.3 MPa**



Air Management System
Regulator Type
AMS20B/30B/40B/60B Series

Symbol





How to Order

AMS 40 B – F 04 C – PN – M L G

❶ ❷ ❸ ❹ ❺ ❻ ❼

		Symbol	Description	❶ Body size			
				20	30	40	60
❷	Pipe thread type	R	Rc	●	●	●	●
		N	NPT	●	●	●	●
		F	G	●	●	●	●
		+					
❸	Port size	01	1/8	●	—	—	—
		02	1/4	●	●	—	—
		03	3/8	—	●	●	—
		04	1/2	—	—	●	—
		06	3/4	—	—	—	●
		10	1	—	—	—	●
		00	Without attachments	●	●	●	●
		+					
❹	N.O./N.C.	C	N.C. (Normally closed)	●	●	●	●
		D	N.O. (Normally open)	●	●	●	●
		+					
❺	Protocol	SA	Standalone (When wireless adapter is connected: Wireless remote)	●	●	●	●
		PN	PROFINET, OPC UA (When wireless adapter is connected: Wireless base)	●	●	●	●
		EN	EtherNet/IP™, OPC UA (When wireless adapter is connected: Wireless base)	●	●	●	●
		+					
❻	Unit	K*1	Pressure gauge: MPa/psi dual scale, EXA1: Units selection function	●	●	●	●
		M	Pressure gauge in SI units: MPa, EXA1: SI units only	●	●	●	●
		+					
❼	Manual override	G	Non-locking push type	●	●	●	●
		E	Push-turn locking type (Manual)	●	●	●	●

*1 Applies to overseas destinations only

Standard Specifications: Regulator Type

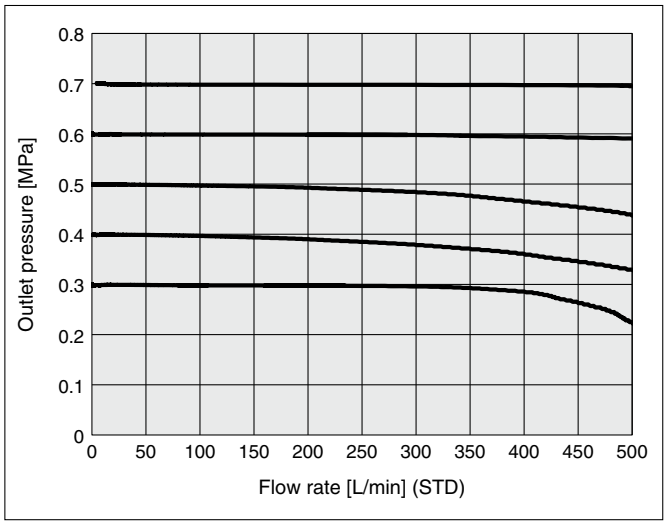
Model		AMS20B	AMS30B	AMS40B	AMS60B
Component	Standby regulator	AR20S	AR30S	AR40S	AR50S
	Air management hub	EXA1-20	EXA1-30	EXA1-40	EXA1-60
	Residual pressure relief valve	VP346E	VP546E	VP746E	VP946E
Port size		1/8, 1/4	1/4, 3/8	3/8, 1/2	3/4, 1
Fluid		Air			
Rated flow range		5 to 500 L/min	10 to 1000 L/min	20 to 2000 L/min	40 to 4000 L/min
Ambient and fluid temperatures		0 to 50°C			
Proof pressure		1.0 MPa			
Max. operating pressure		0.7 MPa			
Supply pressure range		0.3 to 0.7 MPa			
Standby pressure range		0.2 to 0.4 MPa			
Power supply voltage		24 VDC ±10%			
Current consumption		400 mA or less			
Input/Output		DI x 2 DI, DO IO-Link, DI			
Enclosure		IP65 (Electrical equipment part only)			

Flow Rate Characteristics (Representative values): AMS20B/30B/40B/60B/Regulator Type

Conditions/Supply pressure: 0.3 to 0.7 MPa, Standby pressure: 0.2 MPa **Operation mode**

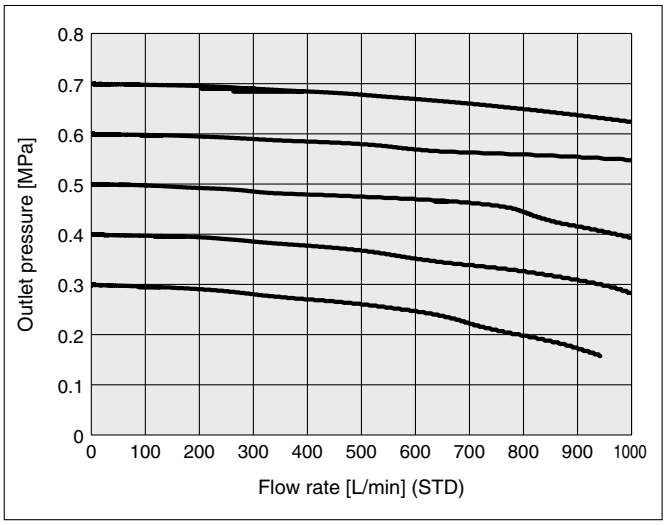
AMS20B

Rc1/4



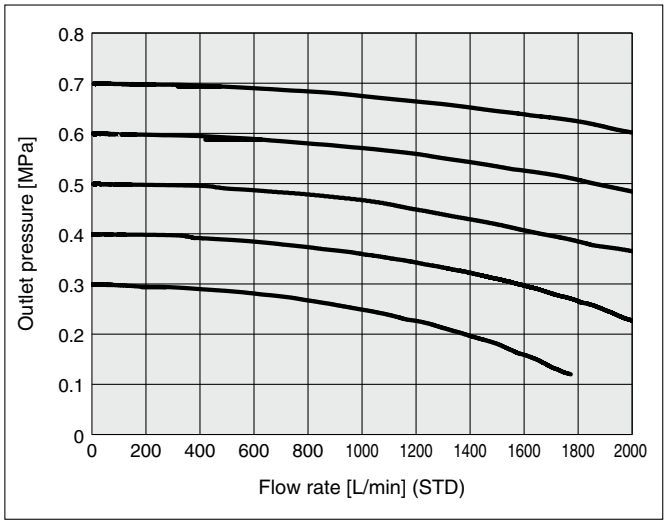
AMS30B

Rc3/8



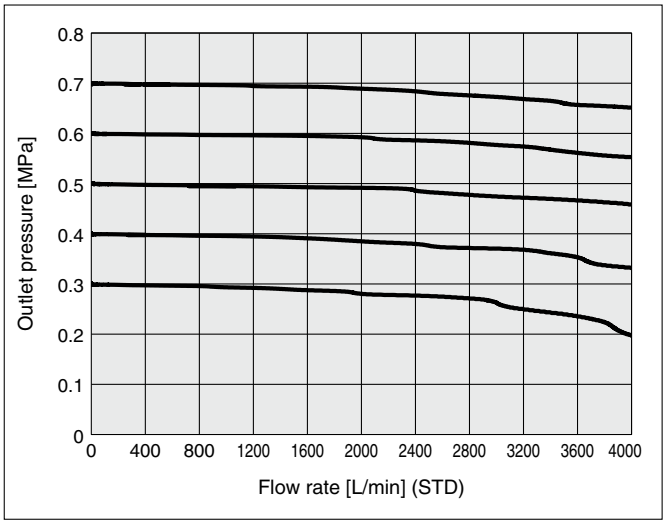
AMS40B

Rc1/2



AMS60B

Rc1

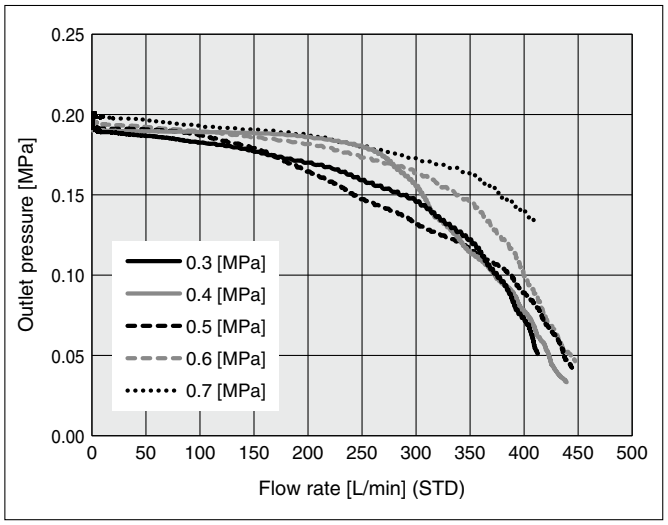


Flow Rate Characteristics (Representative values): AMS20B/30B/40B/60B/Regulator Type

Conditions/Supply pressure: 0.5 MPa, Standby pressure: 0.2 MPa **Standby mode**

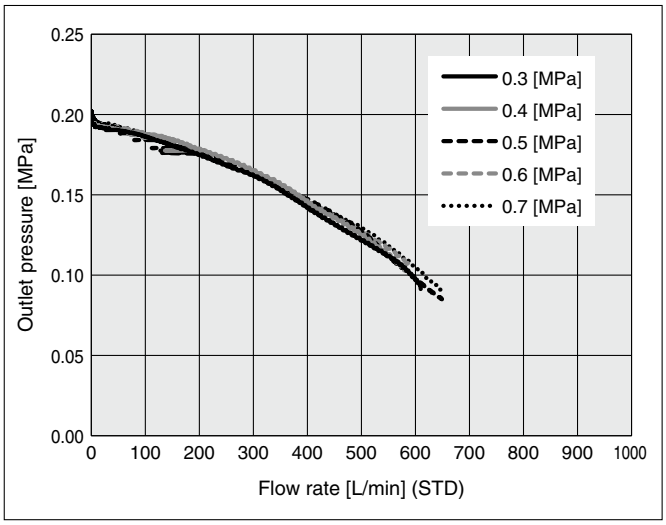
AMS20B

Rc1/4



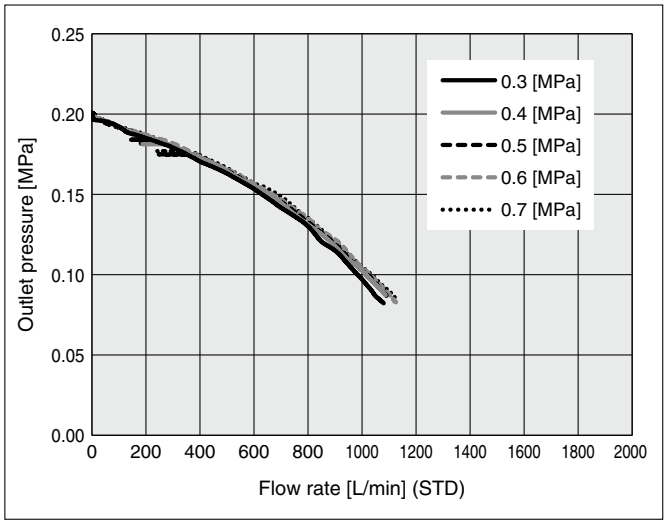
AMS30B

Rc3/8



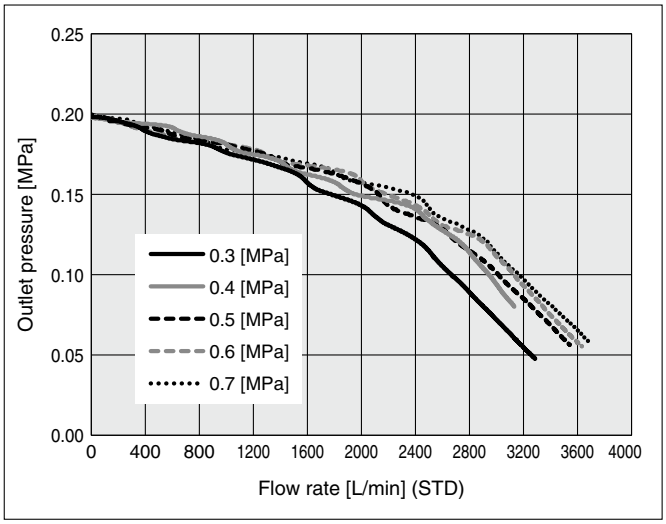
AMS40B

Rc1/2



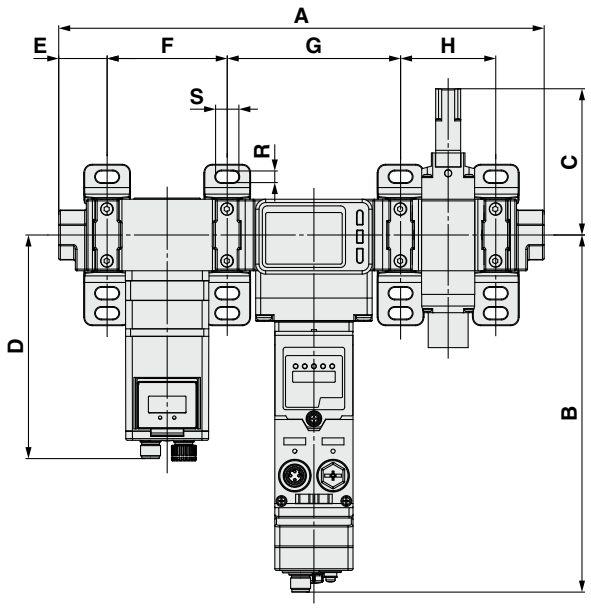
AMS60B

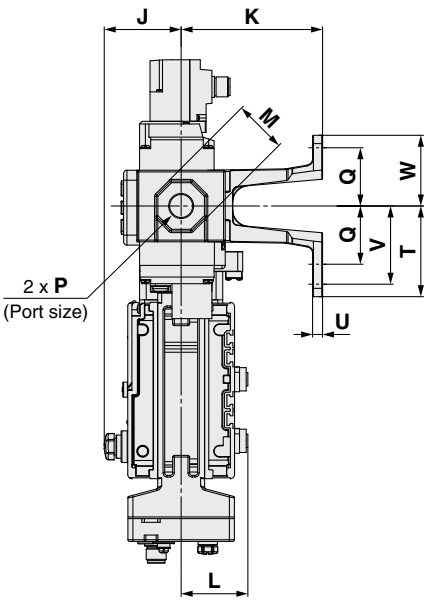
Rc1



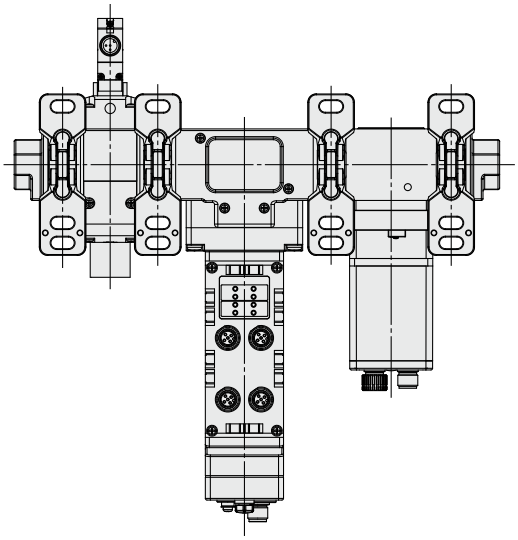
Dimensions: Electro-Pneumatic Regulator Type

N.C. (Normally closed)
AMS20/30/40/60A-R/N/F□C

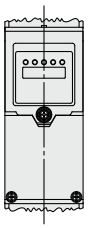




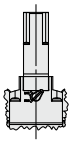
Back side



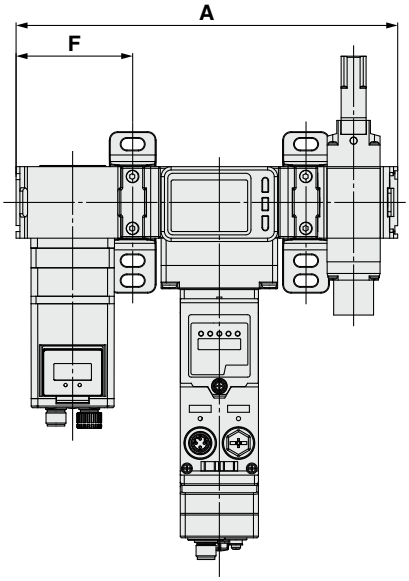
SA: Standalone (Wireless remote)



E: Push-turn locking type



AMS20/30/40/60A-H00C

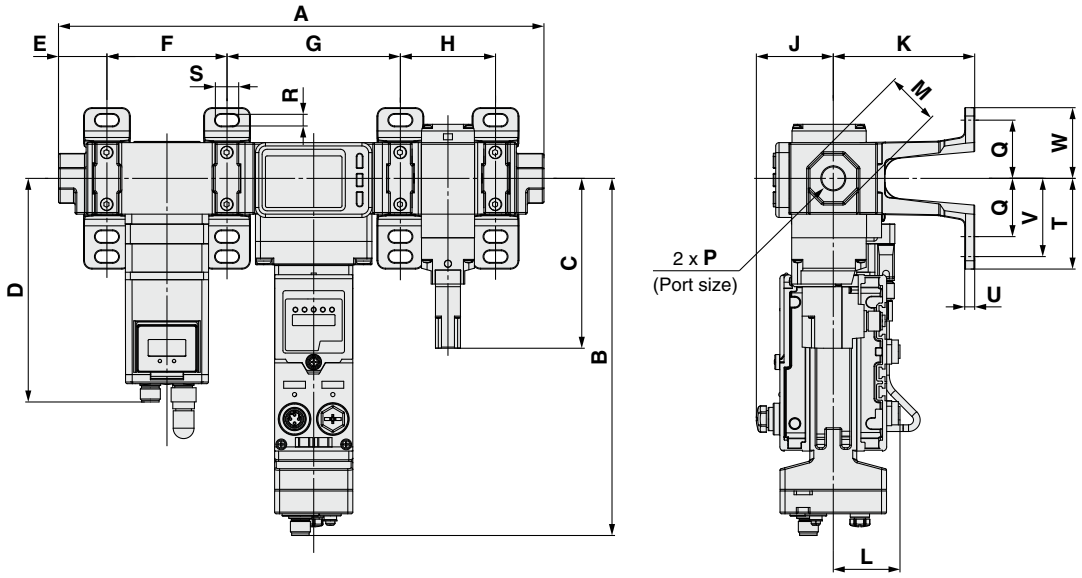


Model	P	A	B	C	D	E	J	M	L	Bracket dimensions										
										K	F	G	H	Q	R	S	T	U	V	W
AMS20A-□C	1/8, 1/4	274.3	214.7	81.7	134.4	25.6	46.2	24	40.1	85	70.2	103.2	49.7	35	7	14	54.5	6	47	42.5
AMS30A-□C	1/4, 3/8	291.8	214.7	87.9	134.4	29.1	46.2	30	40.1	85	72.2	104.2	57.2	35	7	14	54.5	6	47	42.5
AMS40A-□C	3/8, 1/2	334.8	214.9	92.4	151.6	32.6	46.2	36	40.1	85	89.2	105.2	75.2	40	9	18	65	7	55	50
AMS60A-□C	3/4, 1	401.8	214.8	93.7	151.6	42.1	46.2	46	40.1	100	90.2	126.2	101.2	50	11	20	80	8	70	60

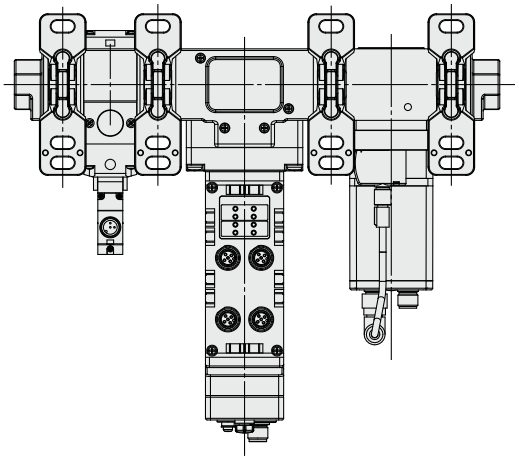
Model	P	A	F
AMS20A-H00C	—	219.9	68.6
AMS30A-H00C	—	229.4	70.1
AMS40A-H00C	—	264.4	86.6
AMS60A-H00C	—	311.4	87.1

Dimensions: Electro-Pneumatic Regulator Type

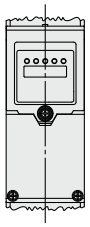
N.O. (Normally open)
AMS20/30/40/60A-R/N/F□D



Back side

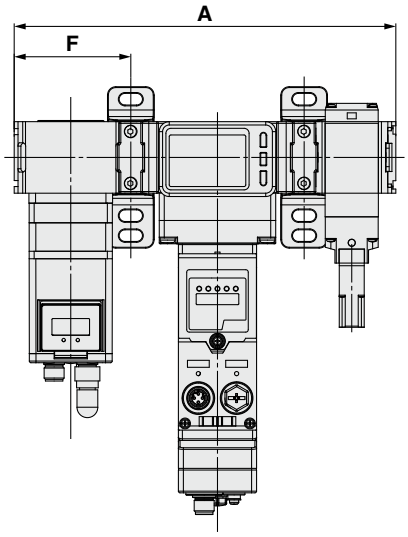


SA: Standalone (Wireless remote)



E: Push-turn locking type

AMS20/30/40/60A-H00D

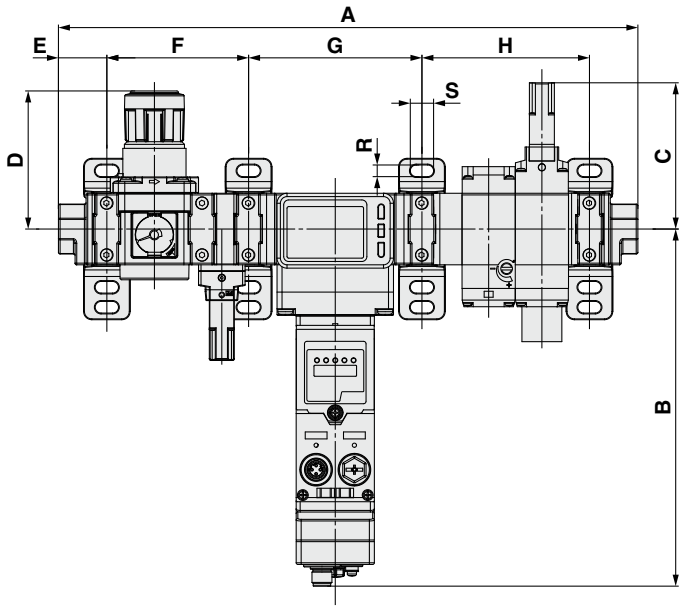


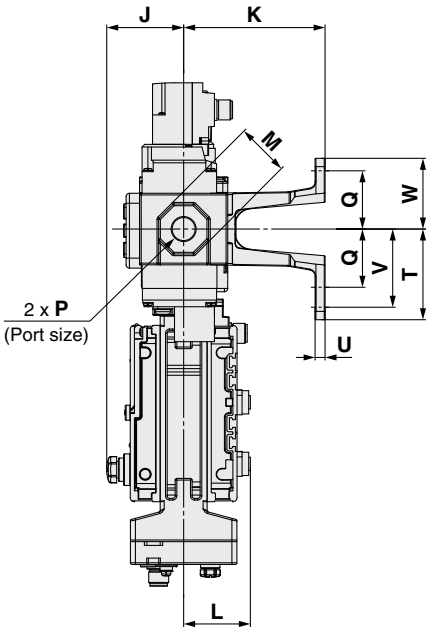
Model	P	A	B	C	D	E	J	M	L	Bracket dimensions										
										K	F	G	H	Q	R	S	T	U	V	W
AMS20A-□D	1/8, 1/4	274.3	214.7	85.1	134.4	25.6	46.2	24	40.1	85	70.2	103.2	49.7	35	7	14	54.5	6	47	42.5
AMS30A-□D	1/4, 3/8	291.8	214.7	102.1	134.4	29.1	46.2	30	40.1	85	72.2	104.2	57.2	35	7	14	54.5	6	47	42.5
AMS40A-□D	3/8, 1/2	334.8	214.9	119.4	151.6	32.6	46.2	36	40.1	85	89.2	105.2	75.2	40	9	18	65	7	55	50
AMS60A-□D	3/4, 1	401.8	214.8	117.7	151.6	42.1	46.2	46	40.1	100	90.2	126.2	101.2	50	11	20	80	8	70	60

Model	P	A	F
AMS20A-H00D	—	219.9	68.6
AMS30A-H00D	—	229.4	70.1
AMS40A-H00D	—	264.4	86.6
AMS60A-H00D	—	311.4	87.1

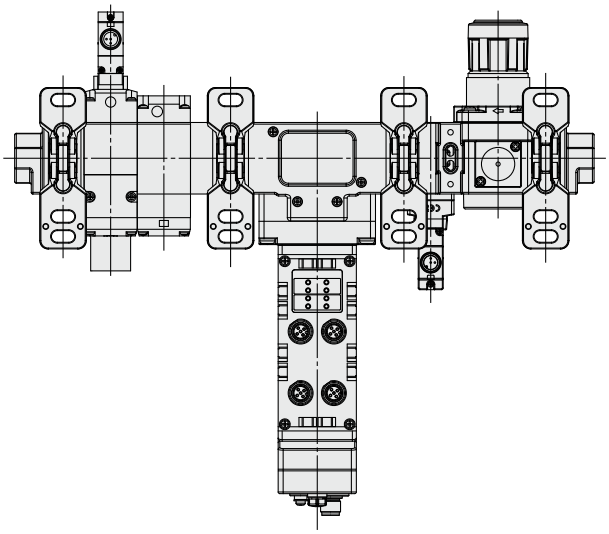
Dimensions: Regulator Type

N.C. (Normally closed)
AMS20/30/40/60B-R/N/F□C

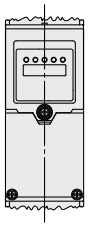




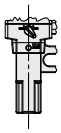
Back side



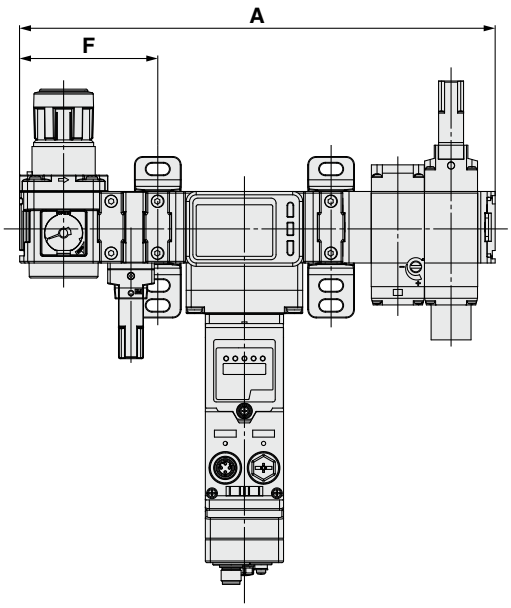
SA: Standalone (Wireless remote)



E: Push-turn locking type



AMS20/30/40/60B-H00C



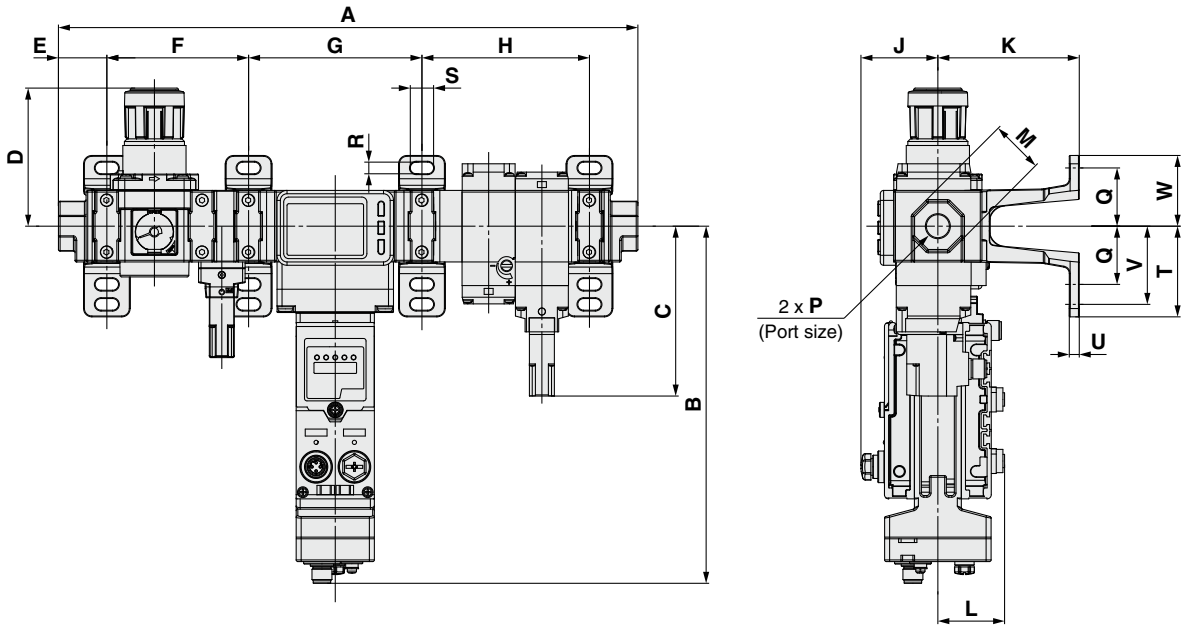
Model	P	A	B	C	D*1	E	J	M	L	Bracket dimensions										
										K	F	G	H	Q	R	S	T	U	V	W
AMS20B-□C	1/8, 1/4	301.8	214.7	81.7	66.8	25.6	46.2	24	40.1	85	71.2	103.2	76.2	35	7	14	54.5	6	47	42.5
AMS30B-□C	1/4, 3/8	348.3	214.7	87.9	86.5	29.1	46.2	30	40.1	85	85.2	104.2	100.7	35	7	14	54.5	6	47	42.5
AMS40B-□C	3/8, 1/2	395.8	214.9	92.4	91.5	32.6	46.2	36	40.1	85	103.2	105.2	122.2	40	9	18	65	7	55	50
AMS60B-□C	3/4, 1	491.8	214.8	93.4	125	42.1	46.2	46	40.1	100	124.2	126.2	157.2	50	11	20	80	8	70	60

Model	P	A	F
AMS20B-□00C	—	247.4	69.6
AMS30B-□00C	—	285.9	83.1
AMS40B-□00C	—	325.4	100.6
AMS60B-□00C	—	401.4	121.1

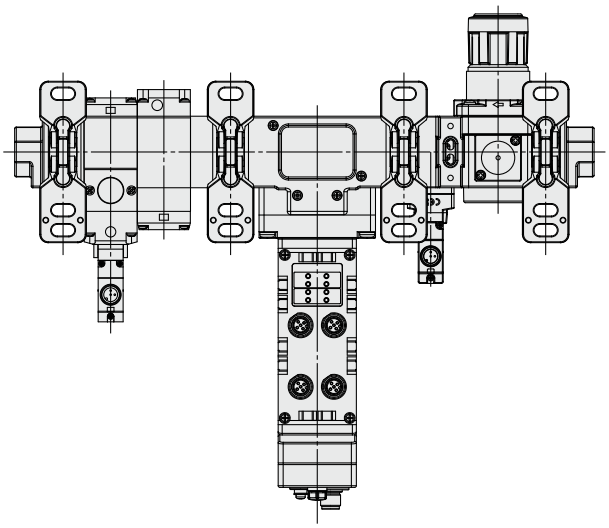
*1 The dimension of D is the length when the regulator knob is unlocked.

Dimensions: Regulator Type

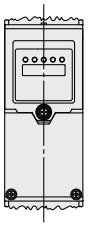
N.O. (Normally open)
AMS20/30/40/60B-□D



Back side

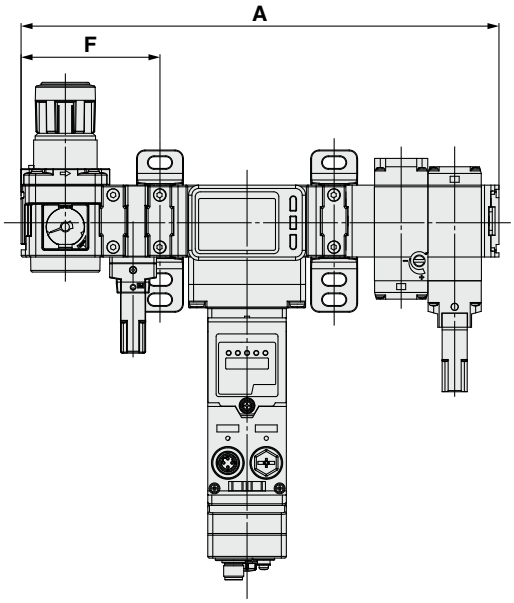


SA: Standalone (Wireless remote)



E: Push-turn locking type

AMS20/30/40/60B-H00D



Model	P	A	B	C	D*1	E	J	M	L	Bracket dimensions										
										K	F	G	H	Q	R	S	T	U	V	W
AMS20B-□D	1/8, 1/4	301.8	214.7	85.1	66.8	25.6	46.2	24	40.1	85	71.2	103.2	76.2	35	7	14	54.5	6	47	42.5
AMS30B-□D	1/4, 3/8	348.3	214.7	102.1	86.5	29.1	46.2	30	40.1	85	85.2	104.2	100.7	35	7	14	54.5	6	47	42.5
AMS40B-□D	3/8, 1/2	395.8	214.9	119.4	91.5	32.6	46.2	36	40.1	85	103.2	105.2	122.2	40	9	18	65	7	55	50
AMS60B-□D	3/4, 1	491.8	214.8	118	125	42.1	46.2	46	40.1	100	124.2	126.2	157.2	50	11	20	80	8	70	60

Model	P	A	F
AMS20B-□00D	—	247.4	69.6
AMS30B-□00D	—	285.9	83.1
AMS40B-□00D	—	325.4	100.6
AMS60B-□00D	—	401.4	121.1

*1 The dimension of D is the length when the regulator knob is unlocked.

Air Management Hub
EXA1 Series

How to Order

EXA1 – 40 – SA – M L

❶ ❷ ❸

		Symbol	Description	❶ Body size [Applicable AC size] 20	30	40	60
❷	Protocol	**SA**	Standalone (When wireless adapter is connected: Wireless remote)	●	●	●	●
		PN	PROFINET, OPC UA (When wireless adapter is connected: Wireless base)	●	●	●	●
		EN	EtherNet/IP™, OPC UA (When wireless adapter is connected: Wireless base)	●	●	●	●
		+					
❸	Unit	**K**∗1	Units selection function	●	●	●	●
		M	SI units only	●	●	●	●

∗1 Applies to overseas destinations only

All Protocols Common Specifications

	Model			EXA1-20	EXA1-30	EXA1-40	EXA1-60
Fluid	**Measured fluid**∗1			Air			
	Fluid temperature			0 to 50°C			
Electrical	**Power supply voltage**			24 VDC ±10%			
	Protection			Polarity protection, Over current protection			
	Current consumption			400 mA			
	Indicator			LED & LCD			
Environment	**Operating temperature range**			0 to 50°C (No freezing and condensation)			
	Storage temperature range			–10 to 60°C (No freezing and condensation)			
	Enclosure			IP65 (Electrical equipment part only)			
	Standards			CE/UKCA marking			
Flow	**Rated flow range**			5 to 500 L/min	10 to 1000 L/min	20 to 2000 L/min	40 to 4000 L/min
	Accumulated flow range			0 to 9,999,999,990 L			
	Smallest settable increment		**Instantaneous flow**	1 L/min		2 L/min	
			Accumulated flow	10 L			
	Accuracy			±3.0% F.S.			
	Repeatability			±1.0% F.S.			
	Pressure characteristics			±5.0% F.S. (0 to 1.0 MPa, 0.5 MPa standard)			
	Temperature characteristics			±5.0% F.S. (0 to 50°C, 25°C standard)			
	Unit			L/min, CFM (ft³/min)			
Pressure	**Rated pressure range**			0 to 1.0 MPa			
	Proof pressure			1.5 MPa			
	Accuracy			±3.0% F.S.			
	Repeatability			±1.0% F.S.			
	Temperature characteristics			±5.0% F.S. (0 to 50°C, 25°C standard)			
	Unit			MPa, kPa, kgf/cm², bar, psi			
Temperature	**Rated temperature range**			0 to 50°C			
	Accuracy∗2			±2.5°C (Flow range:10% to 100%)			
	Unit			°C, °F			
Input/Output	User configurable port	**Number of free ports**		1			
		Configuration		Digital input (x 2), Digital input and output, IO-link and digital input			
		Port specifications: IO-Link	**Communication speed**	COM1 (4.8 kbps) COM2 (38.4 kbps) COM3 (230.4 kbps) Automatically switches depending on the connected device			
			Max. supply current	0.3 A			
		Port specifications: Input	**Input type**	PNP			
			Rated input current	Pin 2: Typ. 2.5 mA, Pin 4: Typ.5.8 mA			
			ON voltage	13 V or more			
			OFF voltage	8 V or less			
		Port specifications: Output	**Output type**	PNP			
			Max. load current	0.25 A			
	Output for Air Management System function			IO-Link/PNP input/PNP output			

Protocol specifications (EXA1-□-PN)

Model			EXA1-□-PN
Communication	**Protocol**		PROFINET IO (Conformance Class C)
	Communication speed		100 Mbps
	Configuration file		GSDML file∗3
	Web server		Support
Input/Output	**Output**	**Fail safe**	HOLD/CLEAR

∗3 The configuration file can be downloaded from the SMC website.
https://www.smcworld.com

Protocol specifications (EXA1-□-EN)

Model			EXA1-□-EN
Communication	**Number of communication ports**		2 port
	Protocol		EtherNet/IP™ (Conformance version: Composite 11)
	Communication speed		100 Mbps
	Communication method		Full duplex/Half duplex
	Configuration file		EDS file∗3
	Occupation area (Number of inputs/outputs)		Max. (512 byte/512 byte)
	IP address setting range		Through DHCP server: Optional address
	Device information		Vendor ID : 7(SMC Corporation) Device type : 12 (Communication Adapter) Product code : 263
	Web server		Support
Input/Output	**Output**	**Fail safe**	HOLD/CLEAR

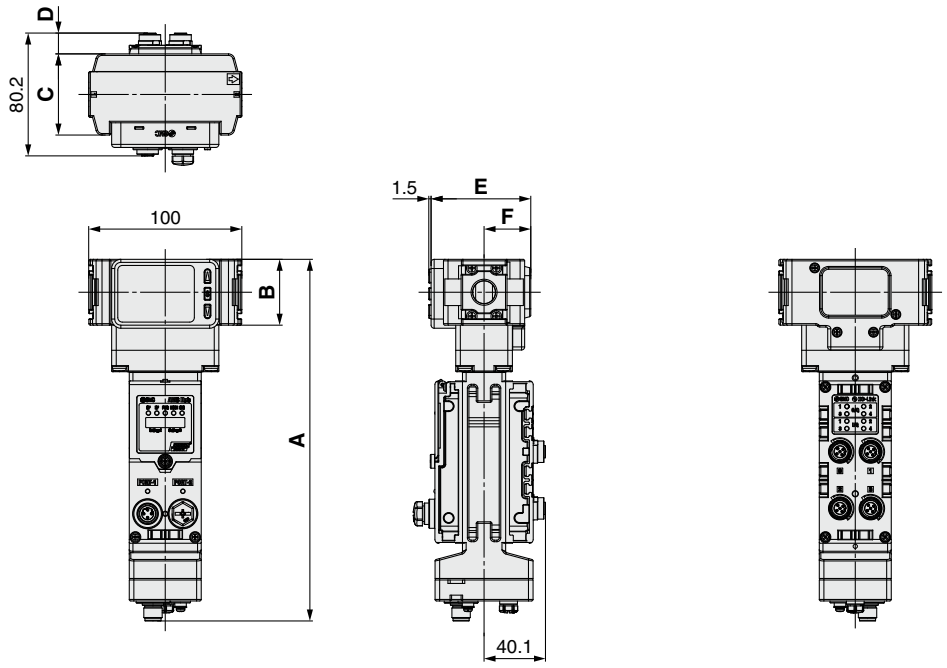
∗3 The configuration file can be downloaded from the SMC website.
https://www.smcworld.com

∗1 Air quality grade is JIS B 8392-1:2012 [4:6:-] and ISO 8573-1:2010 [4:6:-].

∗2 When the flow range is less than 10%, temperature accuracy is -2.5 to 7.5°C.

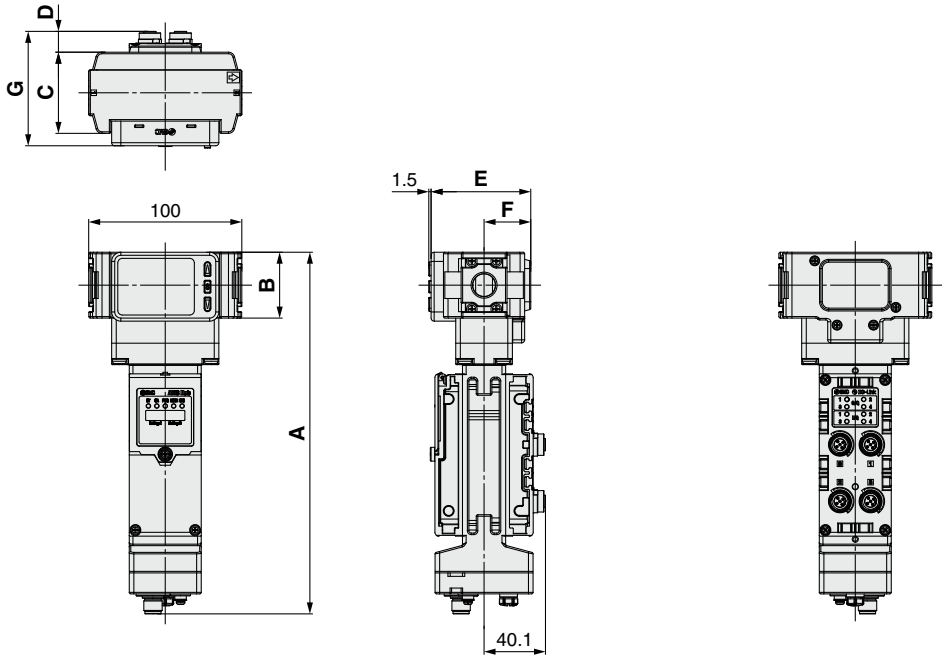
Dimensions: Sizes 20, 30, 40

EXA1-20/30/40-PN/EN-□



Model	A	B	C	D	E	F
EXA1-20	236.2	35	42	19.1	65.1	30.5
EXA1-30	236.2	43	53	13.6	65.1	30.5
EXA1-40	240.4	51	71	4.6	71	35.5

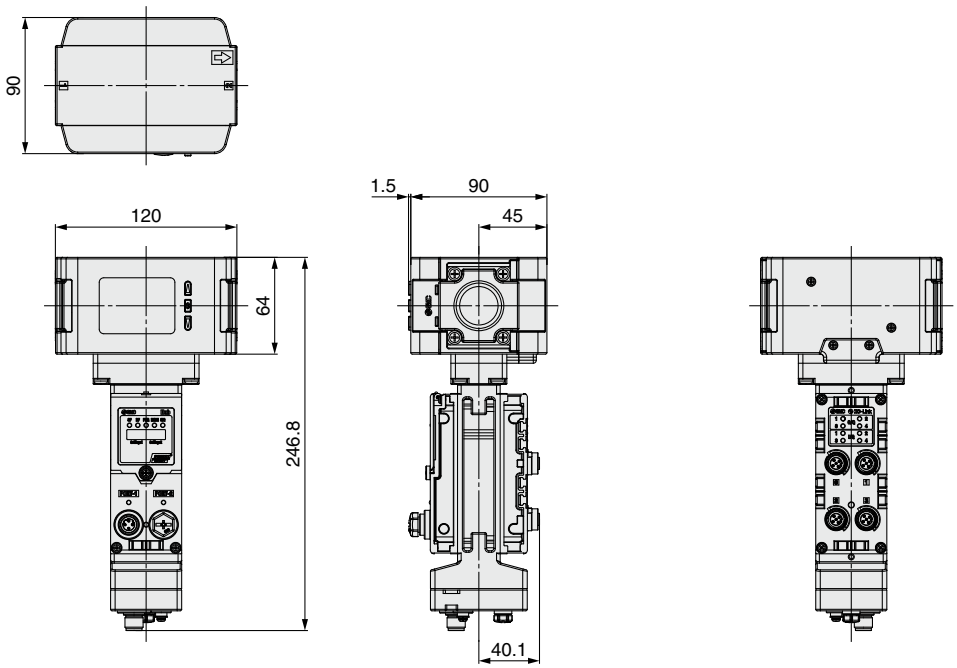
EXA1-20/30/40-SA-□



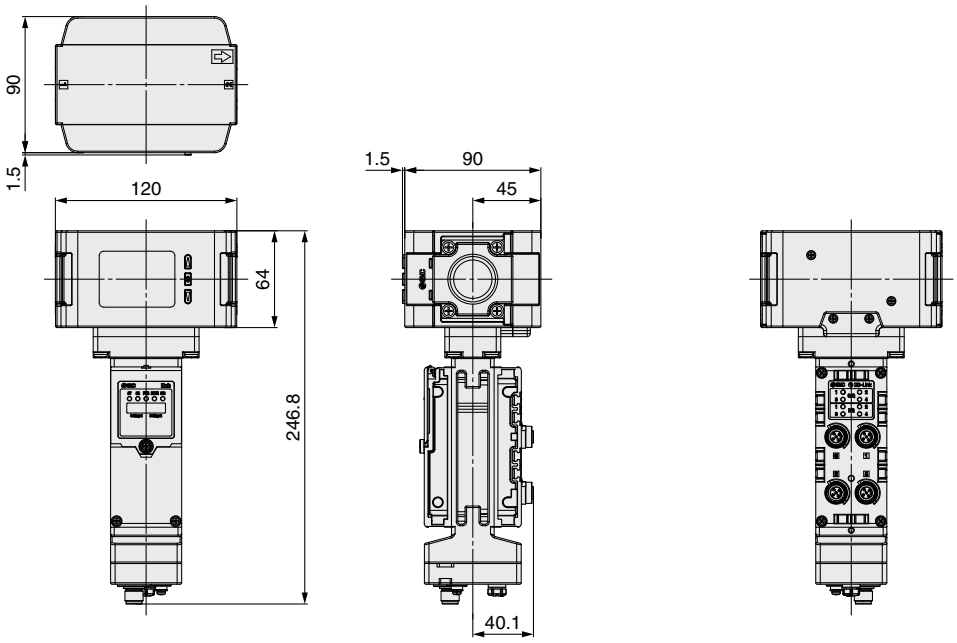
Model	A	B	C	D	E	F	G
EXA1-20	236.2	35	42	19.1	65.1	30.5	74.7
EXA1-30	236.2	43	53	13.6	65.1	30.5	74.7
EXA1-40	240.4	51	71	4.6	71	35.5	75.6

Dimensions: Size 60

EXA1-60-PN/EN-□



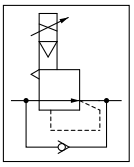
EXA1-60-SA-□



Standby Electro-Pneumatic Regulator

ITV2050 to 3050-X399

Symbol



How to Order

For AMS20A	ITV20	**5**	**0**	– IL	**20**	–	**1**	–	**K** – X399
For AMS30A	ITV20	**5**	**0**	– IL	**30**	–	**1**	–	**K** – X399
For AMS40A	ITV30	**5**	**0**	– IL	**40**	–	**1**	–	**K** – X399
For AMS60A	ITV30	**5**	**0**	– IL	**60**	–	**1**	–	**K** – X399
		❶	❷	❸	❹		❺		❻

❶ Pressure range

5	0.005 to 0.7 MPa

❷ Power supply voltage

0	24 VDC ±10%

❸ Input signal

IL	IO-Link

❹ Applicable AMS□A size

20	For AMS20A
30	For AMS30A
40	For AMS40A
60	For AMS60A

❺ Type of actuation

1	Normally closed
2	Normally open*2

❻ Pressure display unit

K	Units selection function
M	SI units only*6

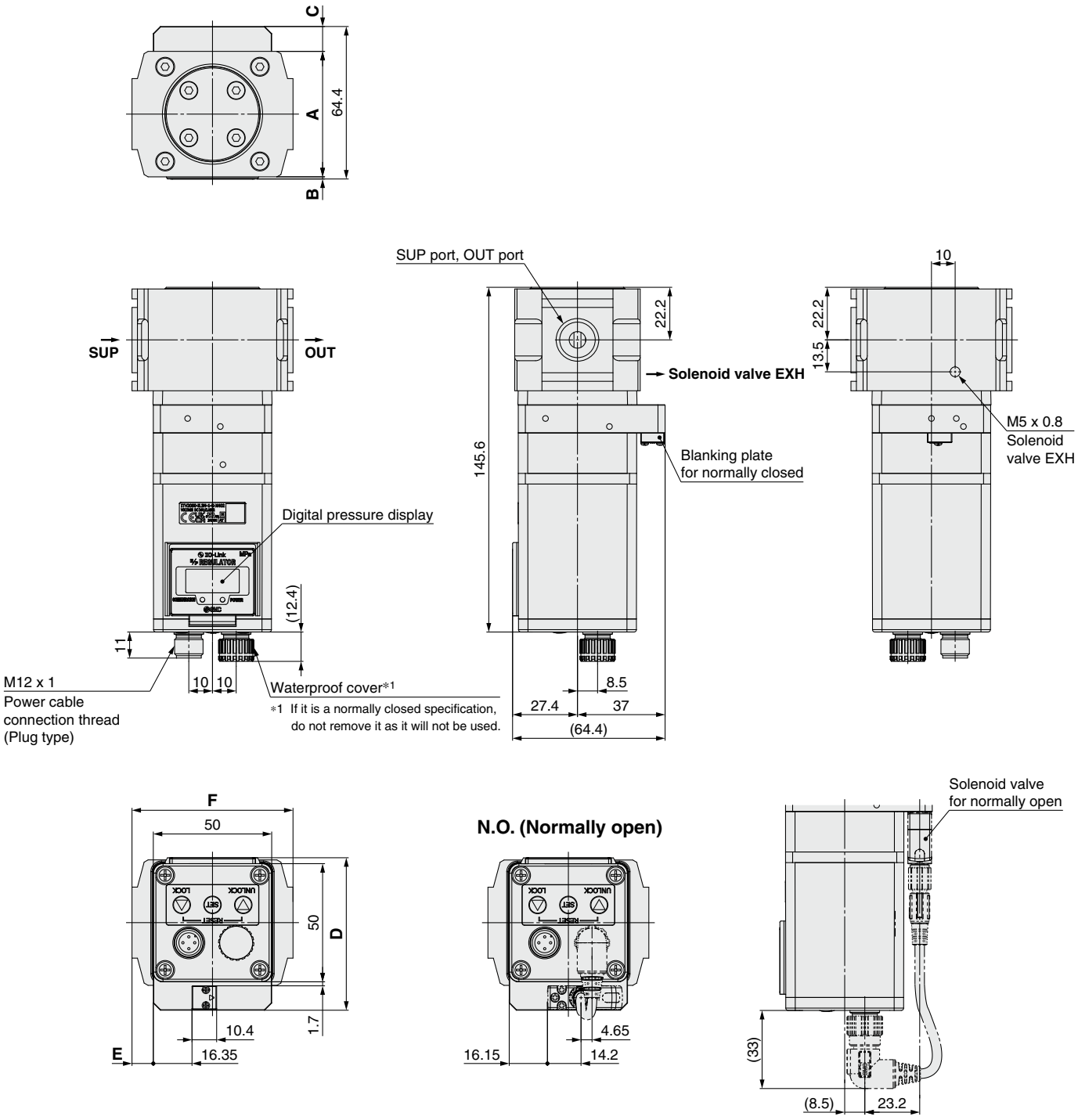
Specifications

Applicable AMS series		AMS20A	AMS30A	AMS40A	AMS60A
Min. supply pressure		Set pressure ±0.1 MPa			
Max. supply pressure		0.8 MPa			
Set pressure range (Rated)*1		0.005 to 0.7 MPa			
Power supply	**Voltage**	24 VDC ±10%			
	Current consumption	0.12 A or less			
Communication	**Protocol**	IO-Link			
	Version	VERSION 1.1			
	Communication speed	230.4 kbps (COM3)			
	IO-Link port	CLASS A			
	IO-Link type	Device			
Linearity		±1% F.S. or less*4			
Repeatability		±0.5% F.S. or less			
Sensitivity		0.2% F.S. or less			
Temperature characteristics		±0.12% F.S./°C or less			
Output pressure display	**Accuracy**	±2% F.S. ±1 digit or less			
	Min. unit*5	3 digits MPa: 0.001, 2 digits MPa: 0.01, kgf/cm²: 0.01, bar: 0.01, psi: 1, kPa: 1			
Ambient and fluid temperatures		0 to 50°C (No condensation)			
Enclosure		IP65			
Weight (Without accessories)		727 g	780 g	1320 g	1640 g

*1 This product does not exhaust by itself. It is not possible to decrease the output pressure with this product alone. (Except when supply pressure is shut off)
*2 In the case of the normally open specification, the output pressure is the supply pressure minus 0.1 MPa or more when the product is turned off.
*3 This product will reduce output pressure to 0.005 MPa or less if the secondary side output is present when supply pressure is shut off.
*4 Since this product does not exhaust by itself, it does not meet product specifications if there is no pressure drop or overshoot.
*5 If the unit is fixed to SI, only MPa or kPa will be displayed.
*6 For use in Japan, the product fixed to SI unit must be used to comply with the new Measurement Act.
*7 This product is for AMS20A/30A/40A/60A only. Do not use for any other application.

Dimensions: Sizes 20, 30

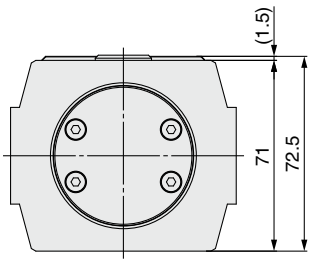
N.C. (Normally closed)
ITV2050-□20/30-□-X399



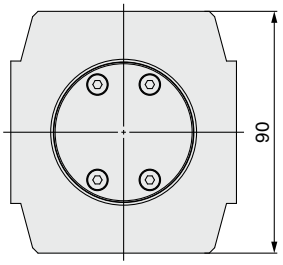
Model	A	B	C	D	E	F
ITV2050-20-□-X399	50	2.4	11.8	64.5	8.5	67
ITV2050-30-□-X399	53	0.9	10.5	64.4	9	68

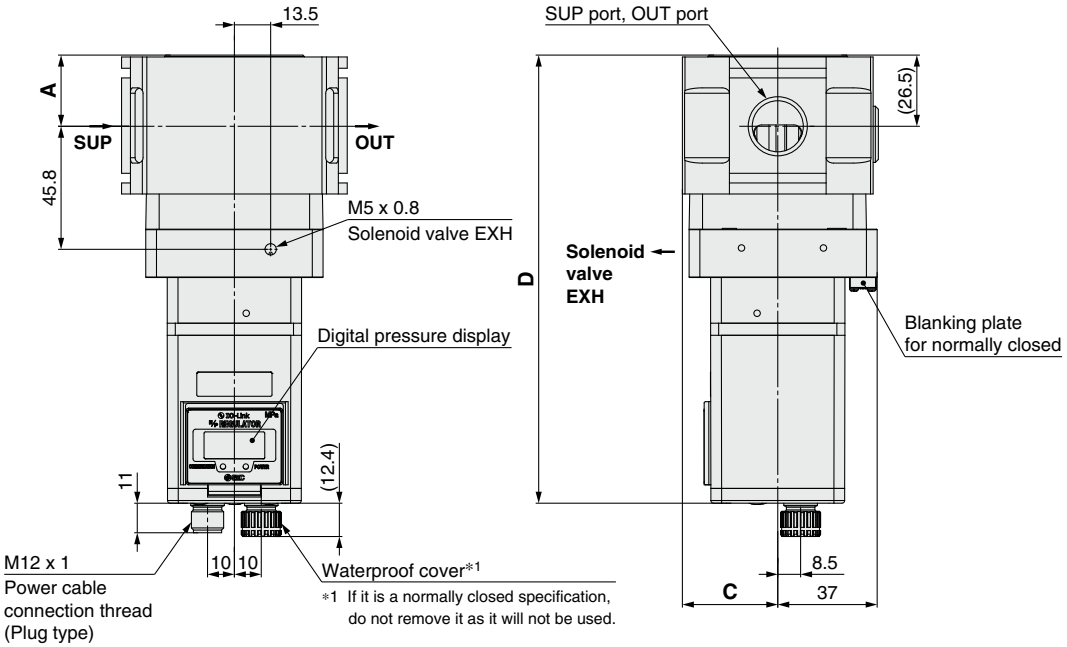
Dimensions: Sizes 40, 60

N.C. (Normally closed)
ITV3050-□40/60-□-X399

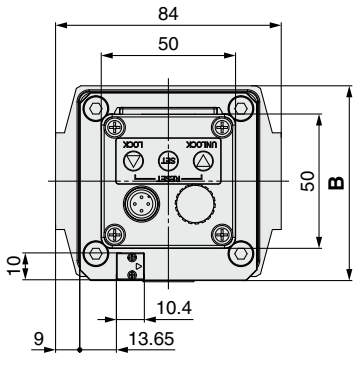


ITV3050-60

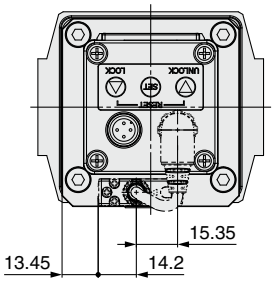


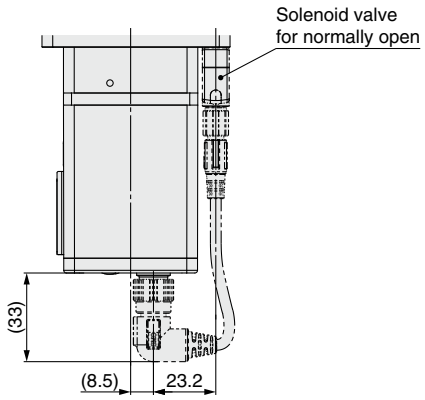


*1 If it is a normally closed specification, do not remove it as it will not be used.



N.O. (Normally open)





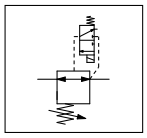
Model	A	B	C	D
ITV3050-40-□-X399	26.5	72.5	35.5	166.8
ITV3050-60-□-X399	33	90	45	173.6

Standby Regulator

RoHS

AR20S to 50S Series

Symbol



How to Order

AR ❶ S – ❷ ❸ E – Y ❹ – 15V ❺

		Symbol	Description	❶ Body size 20	30	40	50
❷	Pipe thread type	Nil	Rc	●	●	●	●
		N	NPT	●	●	●	●
		F	G	●	●	●	●
+							
❸	Port size (Screws are IN side only.)	02	1/4	●	—	—	—
		03	3/8	—	●	—	—
		04	1/2	—	—	●	—
		10	1	—	—	—	●
+							
Pressure gauge		E	Square embedded type pressure gauge (with limit indicator)	●	●	●	●
+							
Knob		Y	Upward	●	●	●	●
❹	Unit	Nil	Name plate and pressure gauge in SI units: MPa	●	●	●	●
		Z	Name plate: MPa, Pressure gauge: MPa/psi dual scale	●	●	●	●
+							
Solenoid valve mounting position and electrical entry direction		1	Mounting position: Opposite side of the knob, Entry direction: Rear side	●	●	●	●
+							
Rated voltage		5	24 VDC	●	●	●	●
+							
Electrical entry		V	M12 connector	●	●	●	●
+							
Light/surge voltage suppressor		Nil	With light/surge voltage suppressor	●	●	●	●
+							
❺	Manual override	Nil	Non-locking push type	●	●	●	●
		E	Push-turn locking type (Manual)	●	●	●	●

Specifications

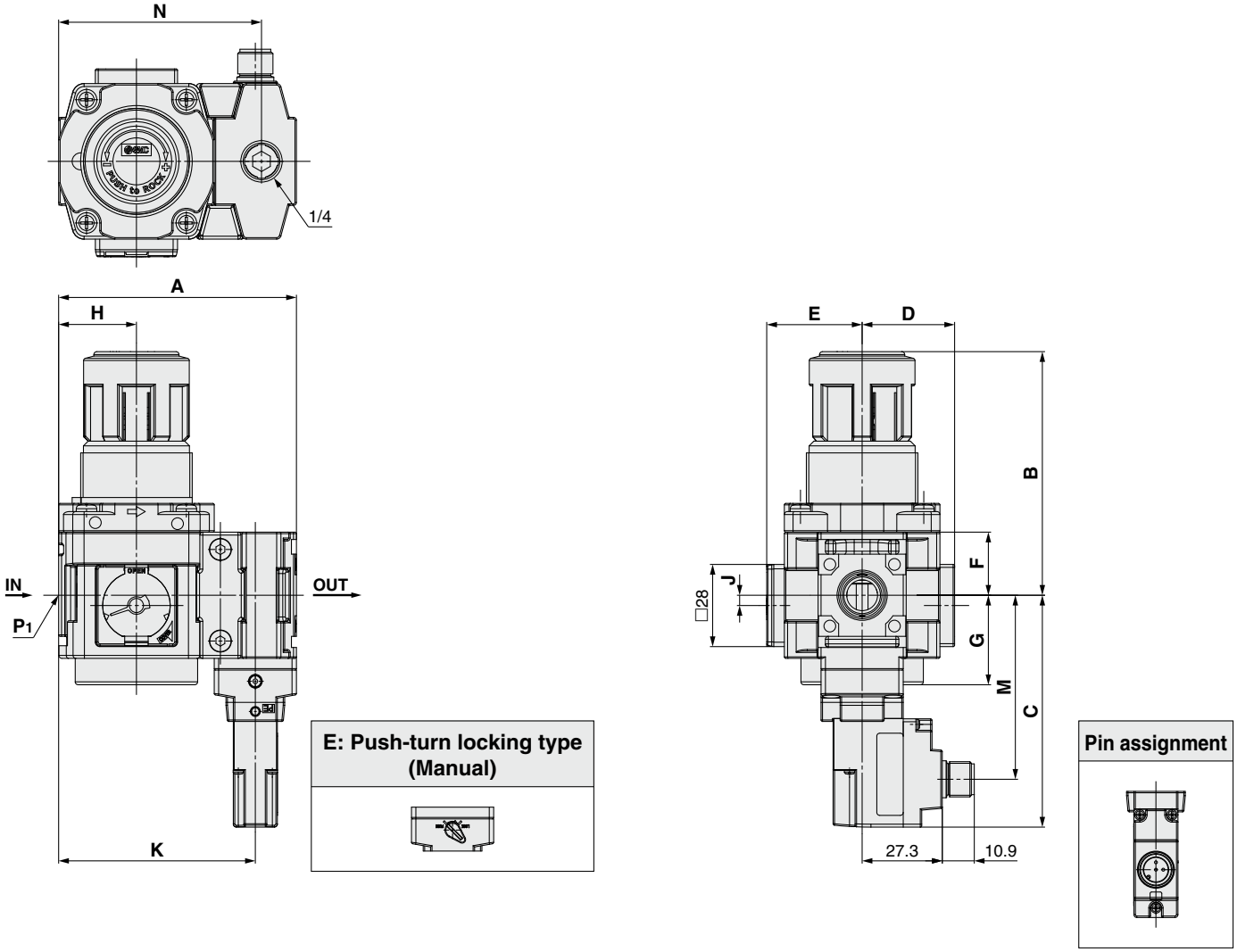
Model	AR20S-D	AR30S-D	AR40S-D	AR50S-D
Port size	1/4	3/8	1/2	1
Fluid	Air			
Ambient and fluid temperatures	0 to 50°C			
Proof pressure	1.05 MPa			
Max. operating pressure	0.7 MPa			
Set pressure range	0.2 to 0.4 MPa			
Regulator exhaust construction	Non-relieving type			
Pilot valve exhaust method	Individual exhaust			
Lubrication	Not required			
Impact/Vibration resistance∗1	150/30 m/s^2			
Enclosure	IP65 (Electrical equipment part only)			
Weight	0.30 kg	0.49 kg	0.77 kg	1.49 kg

∗1 Impact resistance: No malfunction occurred when it is tested in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. The test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Solenoid Specifications

Coil rated voltage	24 VDC
Allowable voltage fluctuation	±10% of the rated voltage
Power consumption	0.4 W
Surge voltage suppressor	Diode
Indicator light	LED

Dimensions

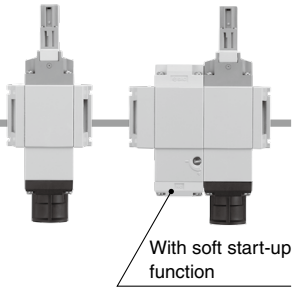


Model	P1	A	B*1	C	D	E	F	G	H	J	K	M	N
AR20S	1/4	68	66.8	73	26	27	17.5	26.5	20	2	54	56.7	55.6
AR30S	3/8	81	86.5	79	31.5	32.5	21.5	30.5	26.5	3.5	67	62.7	69.1
AR40S	1/2	98	91.5	83	40.5	41.5	25.5	35.5	35	—	84	66.7	86.6
AR50S	1	118	125	90.5	50	51	32	43	45	—	104	74.2	105

*1 The dimension of B is the length when the regulator knob is unlocked.

Residual Pressure Relief 3-Port Solenoid Valve

VP346E/546E/746E/946E-X660/X661



How to Order

VP ❑ 46 E – 5 ❑ Z ❑ 1 – ❑ – ❑

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Series

3	VP300
5	VP500
7	VP700
9	VP900

❷

E	Residual pressure relief 3-port solenoid valve

❸ Rated voltage

5	24 VDC

❹ M12 connector

		Pin assignment	Series			
			VP300	VP500	VP700	VP900
KO	Without connector		—	—	—	●
KVO	Without connector		●	●	●	—

❺ Light/surge voltage suppressor

Z	With light/surge voltage suppressor

❻ Manual override

Nil	Non-locking push type
E	Push-turn locking type (Manual)

❼ Soft start-up function

Nil	None
S	With soft start-up function

❽ Custom specifications

X660	N.C., Special cable entry direction
X661	N.O., Special cable entry direction

Specifications

Fluid		Air
Type of actuation		N.C. (X660)/N.O. (X661)
Operating pressure range		0.2 to 0.7 MPa
Ambient and fluid temperatures		–10 to 50°C (No freezing)
Max. operating frequency∗1	**VP(3,5,7)46E**	1 Hz
	VP946E	To be determined (Verification required)
Manual override		Non-locking push type Push-turn locking type (Manual)
Pilot exhaust		Individual exhaust
Lubrication		Not required
Impact/Vibration resistance∗2	**VP(3,5,7)46E**	150/30 m/s^2
	VP946E	To be determined (Verification required)
Enclosure		IP65 (Electrical equipment part only)

∗1 Excludes the type with a soft start-up function

∗2 Impact resistance: No malfunction occurred when it is tested in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. The test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

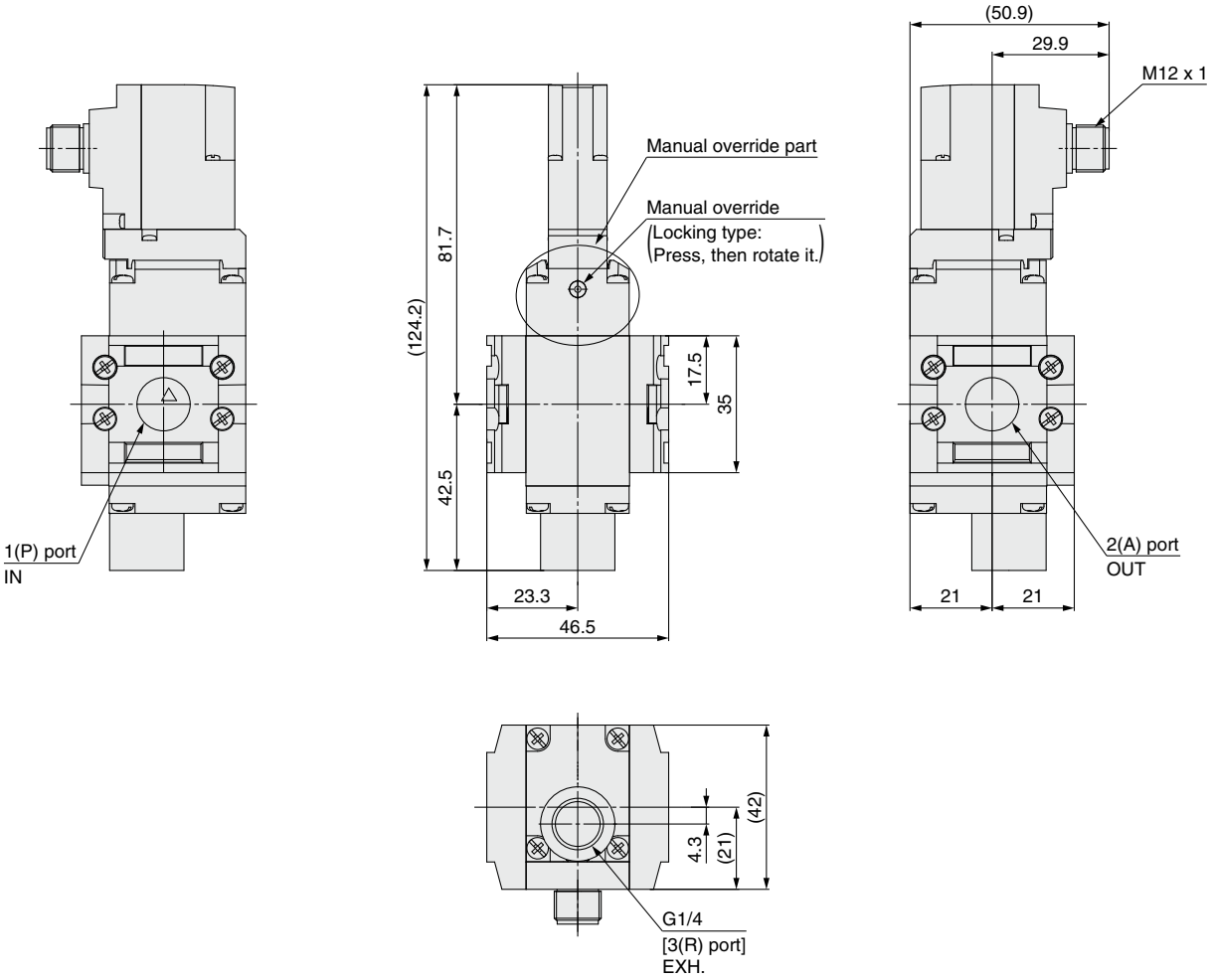
∗ This valve is a large flow rate pilot-operated solenoid valve. If the operating pressure falls below 0.2 MPa due to a pressure drop caused by insufficient air supply, it may not be able to switch properly.

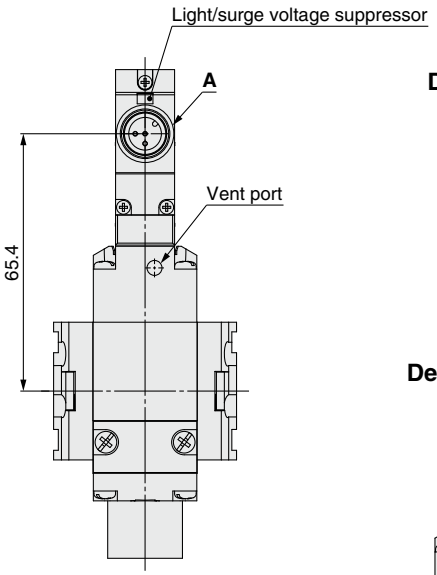
Solenoid Specifications

Coil rated voltage	24 VDC
Allowable voltage fluctuation	±10% of the rated voltage
Power consumption	0.4 W
Surge voltage suppressor	Diode
Indicator light	LED

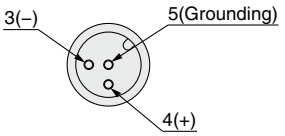
Dimensions

N.C. (Normally closed)
VP346E-X660

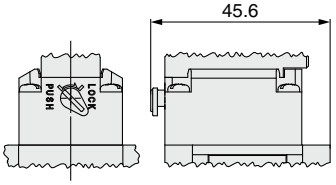




Detailed figure of A section
M12 connector

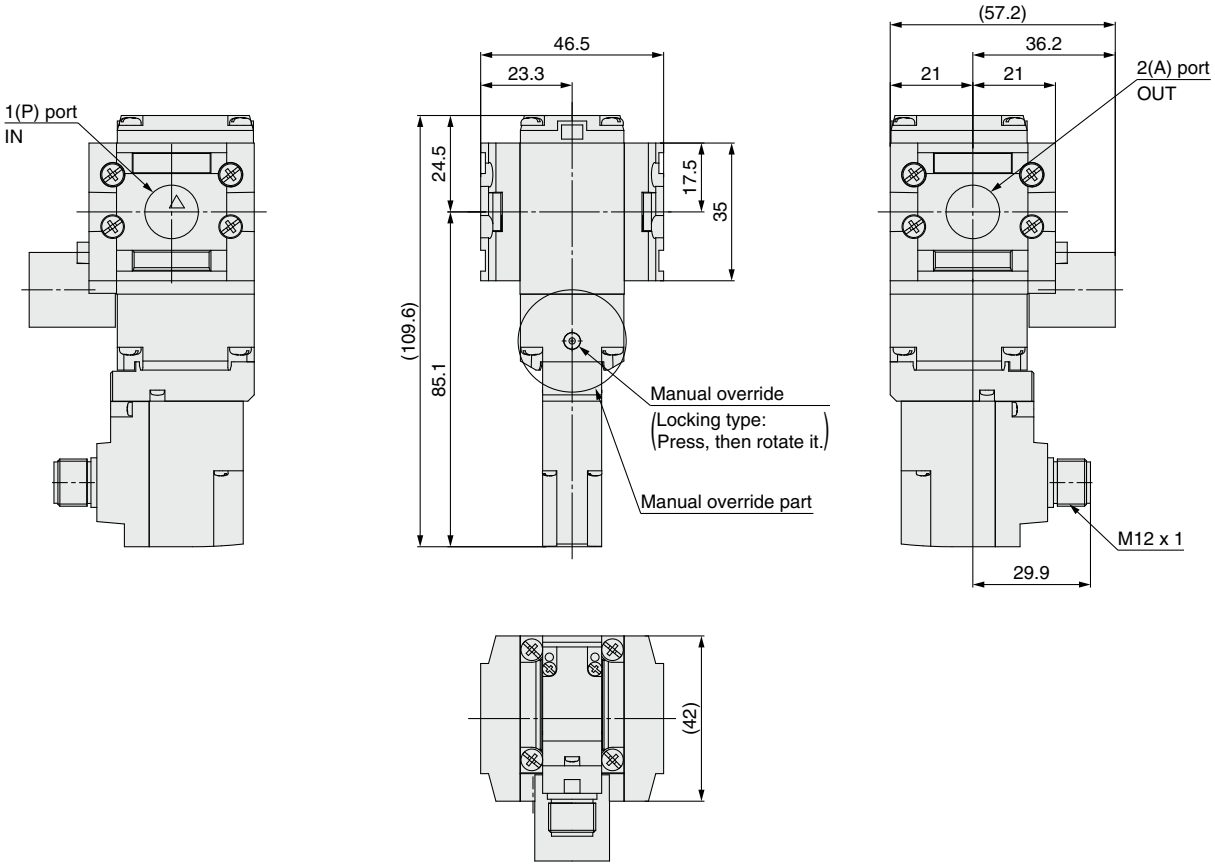


Details of manual override part
(for manual operation)
Type E

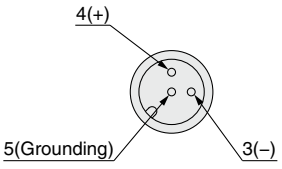


Dimensions

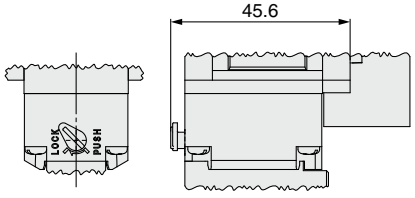
N.O. (Normally open)
VP346E-X661



Detailed figure of B section
M12 connector

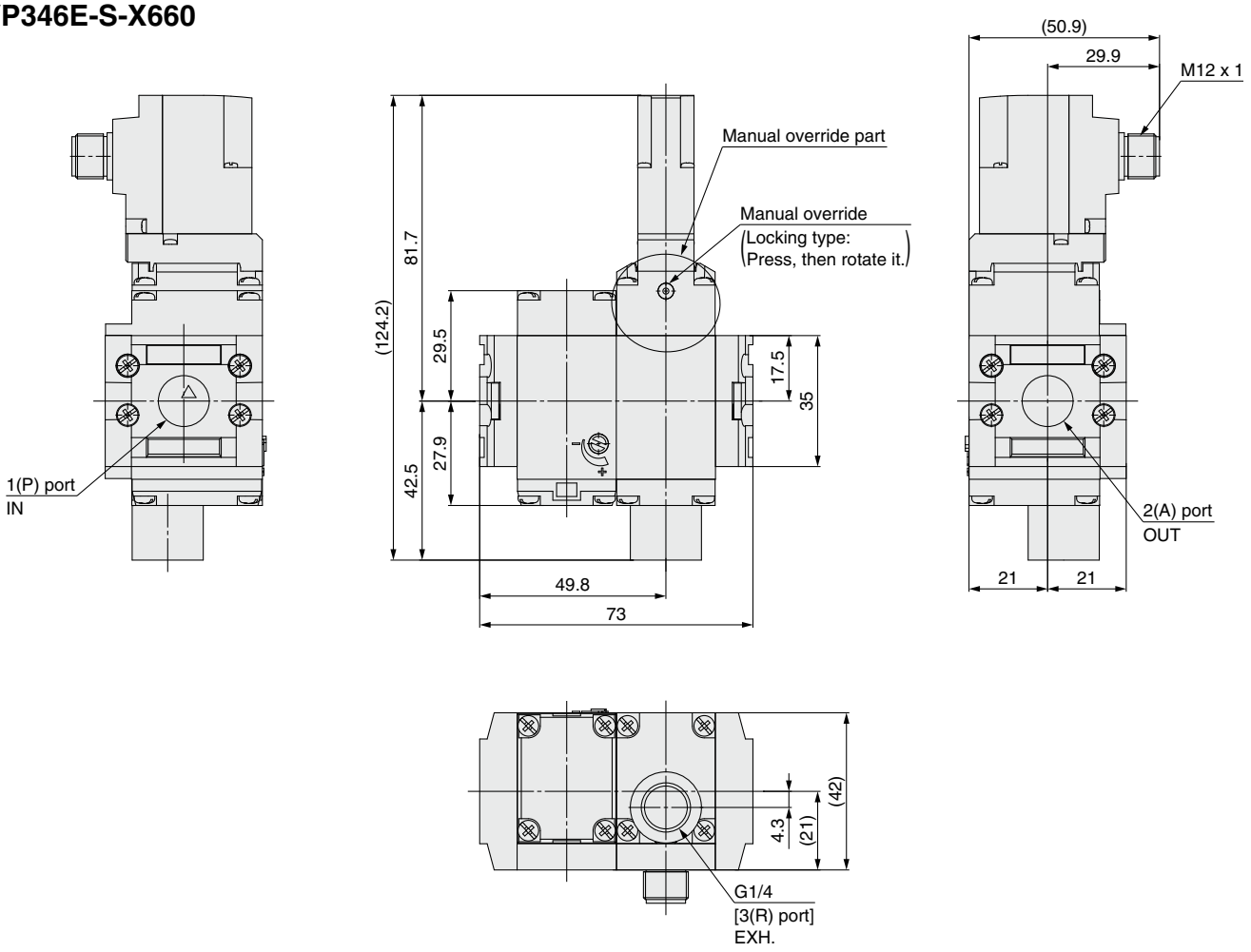


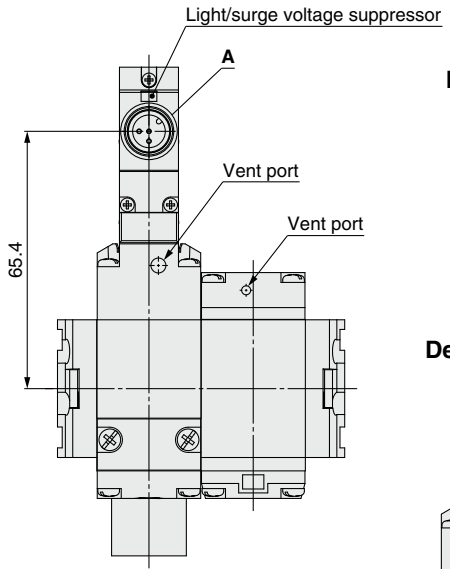
Details of manual override part
(for manual operation)
Type E



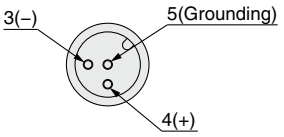
Dimensions

With soft start-up function
N.C. (Normally closed)
VP346E-S-X660

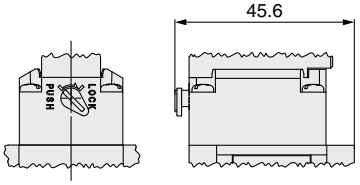




Detailed figure of A section
M12 connector

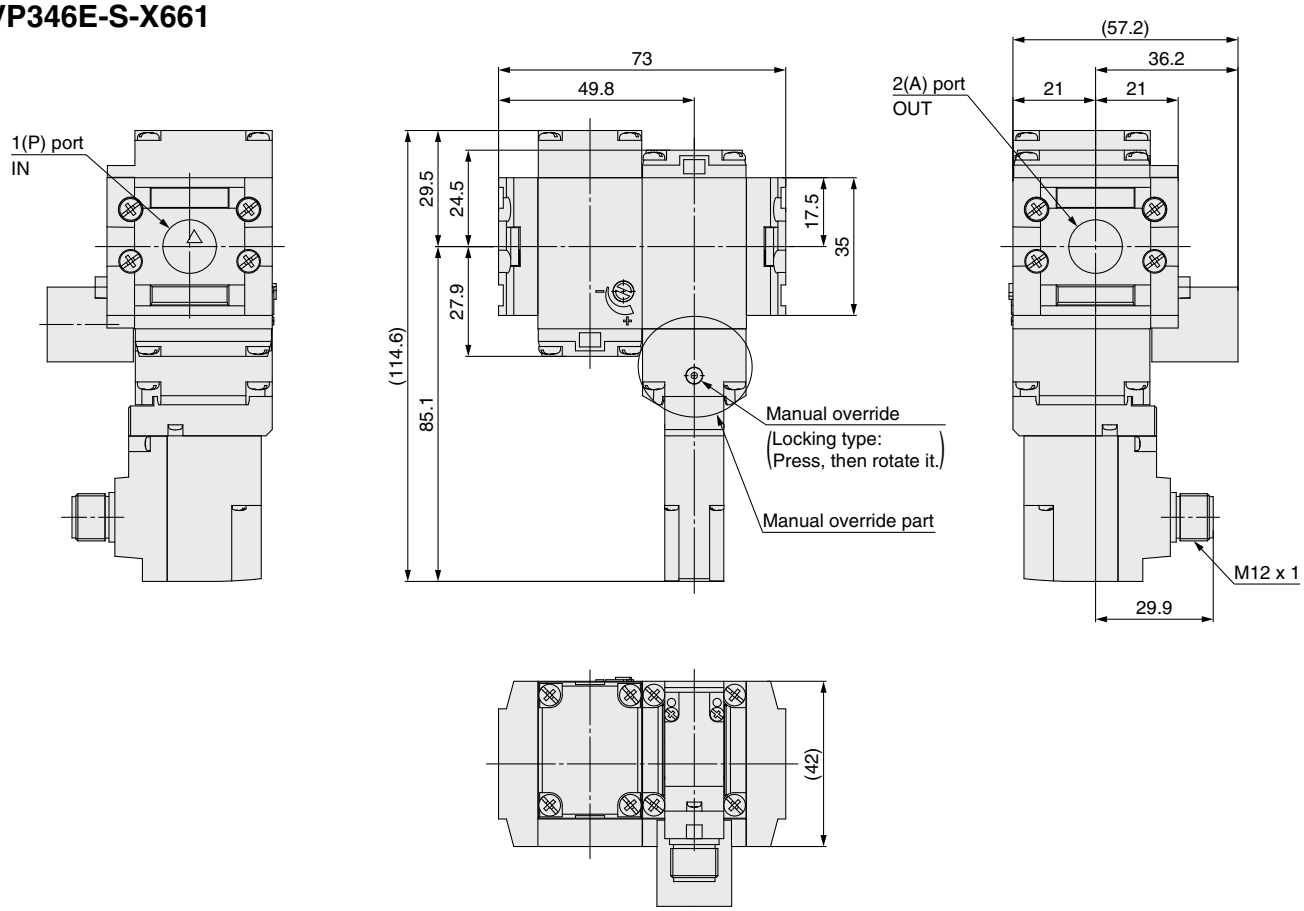


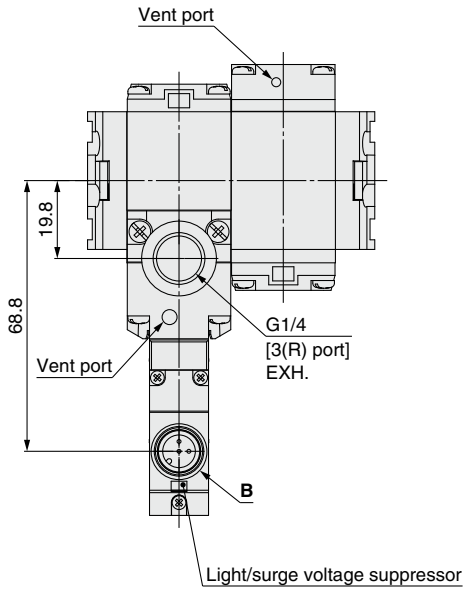
Details of manual override part
(for manual operation)
Type E



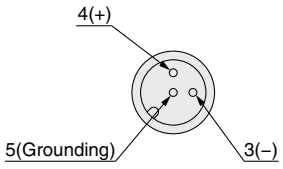
Dimensions

With soft start-up function
N.O. (Normally open)
VP346E-S-X661

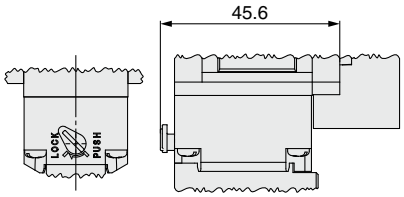




Detailed figure of B section
M12 connector

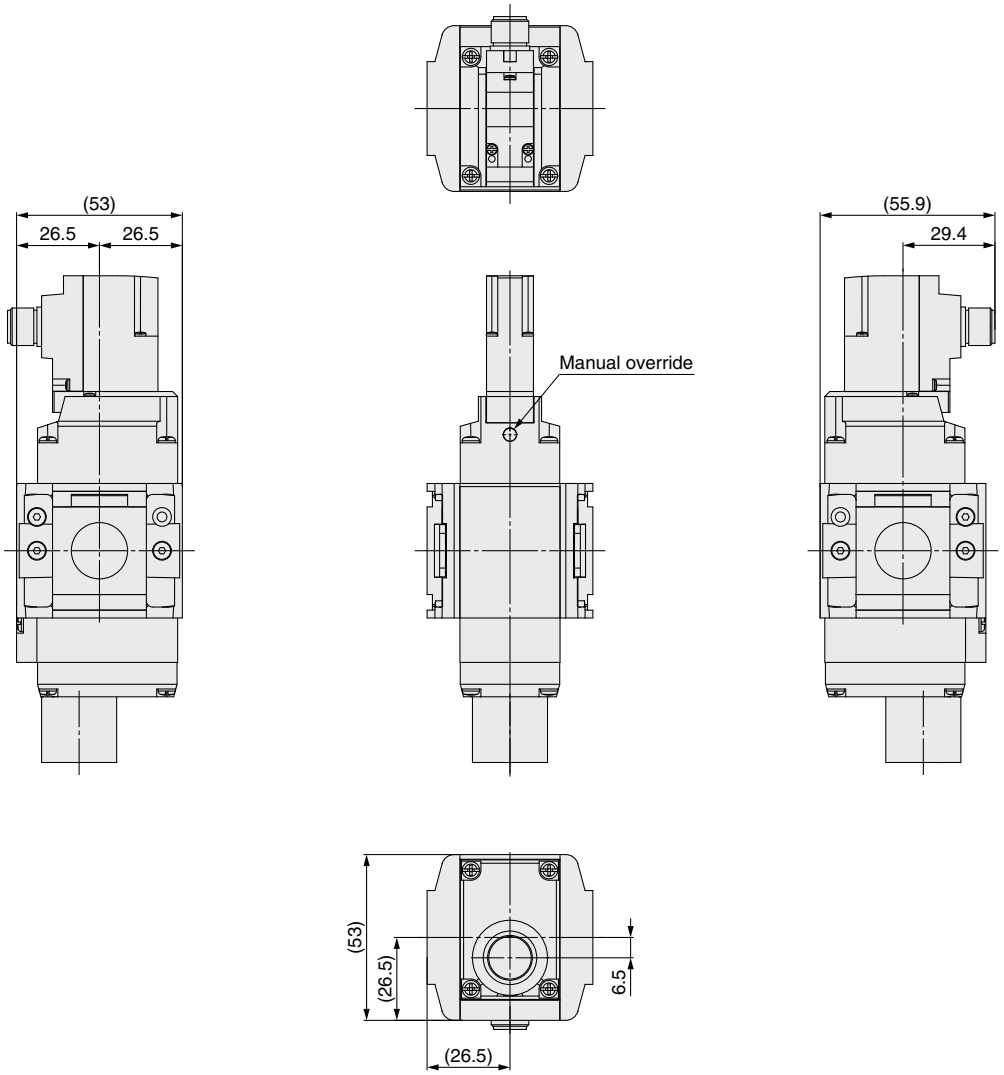


Details of manual override part
(for manual operation)
Type E

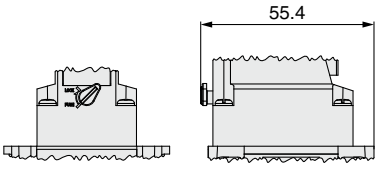


Dimensions

N.C. (Normally closed)
VP546E-X660

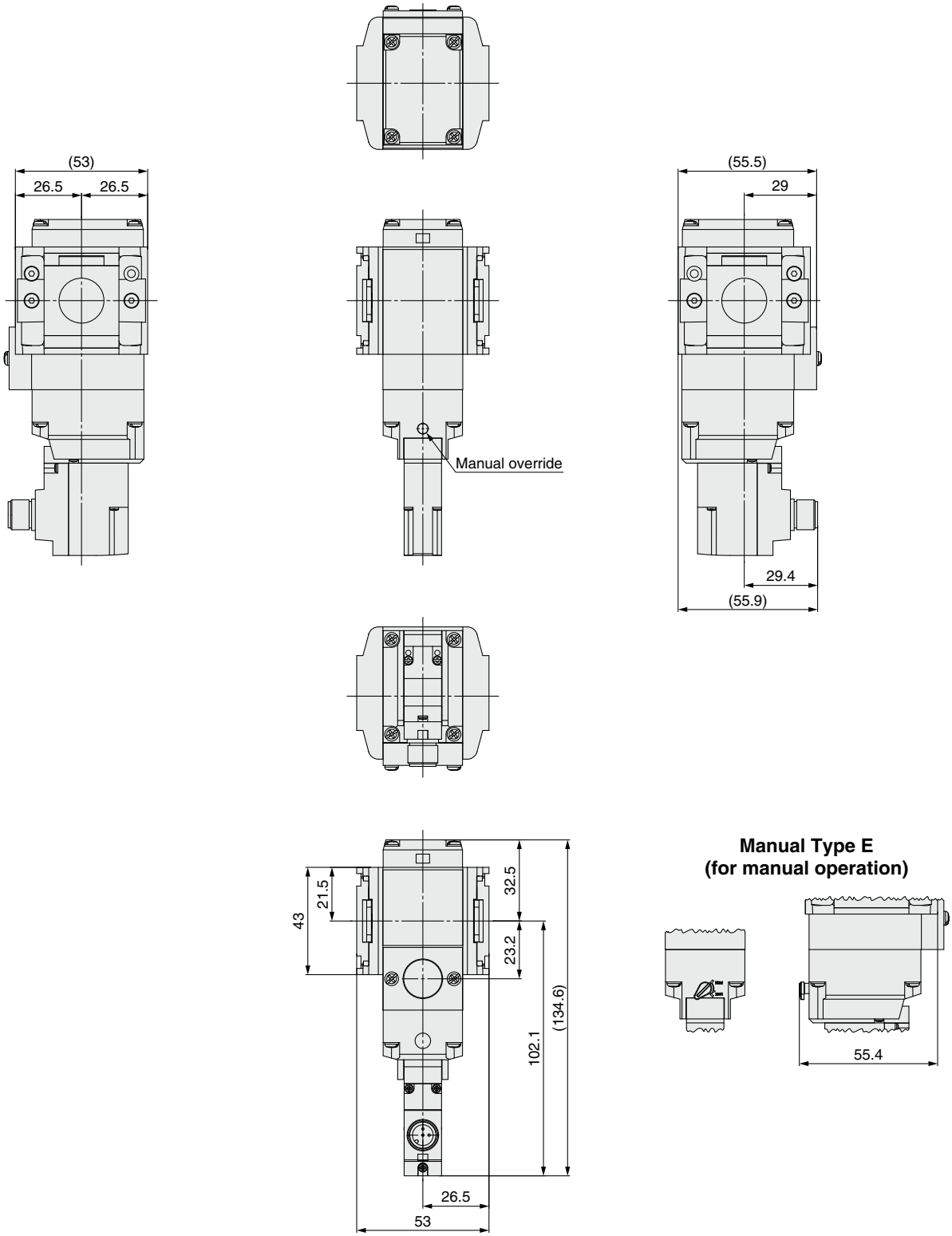


Manual Type E
(for manual operation)



Dimensions

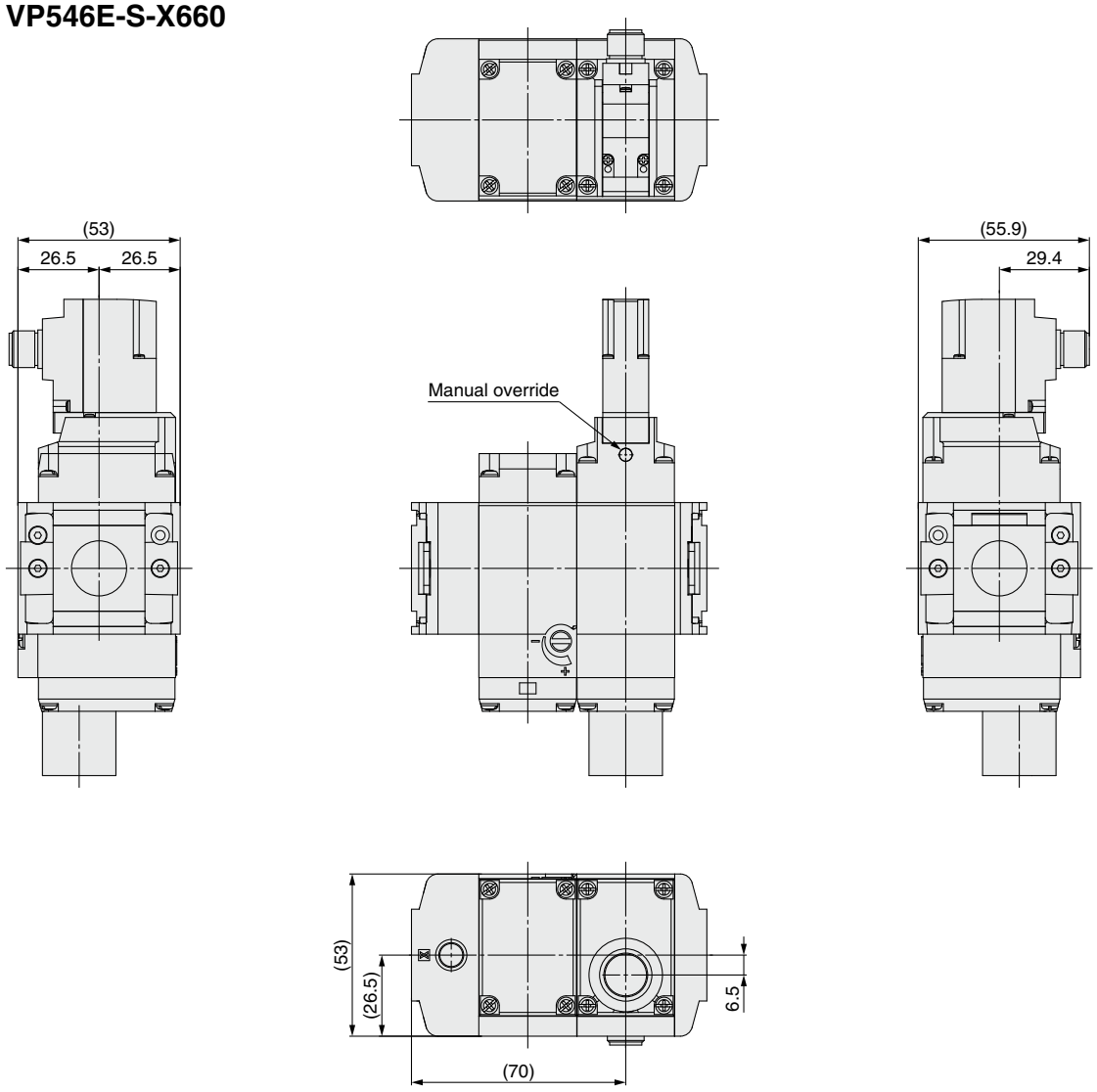
N.O. (Normally open)
VP546E-X661

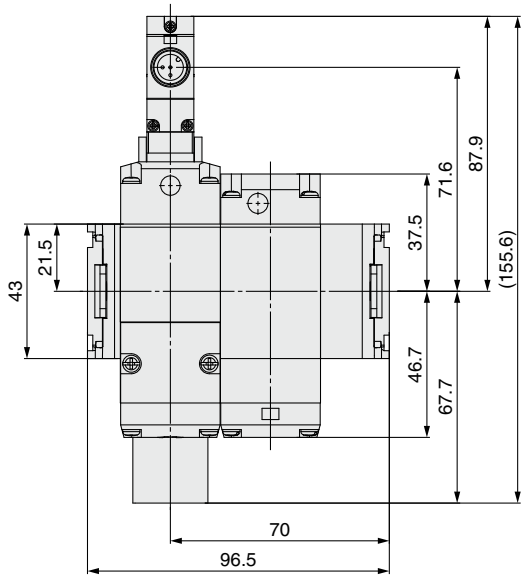


Manual Type E
(for manual operation)

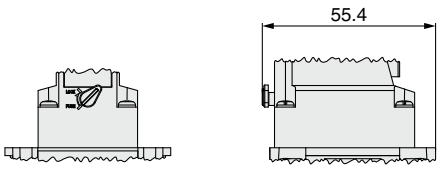
Dimensions

With soft start-up function
N.C. (Normally closed)
VP546E-S-X660



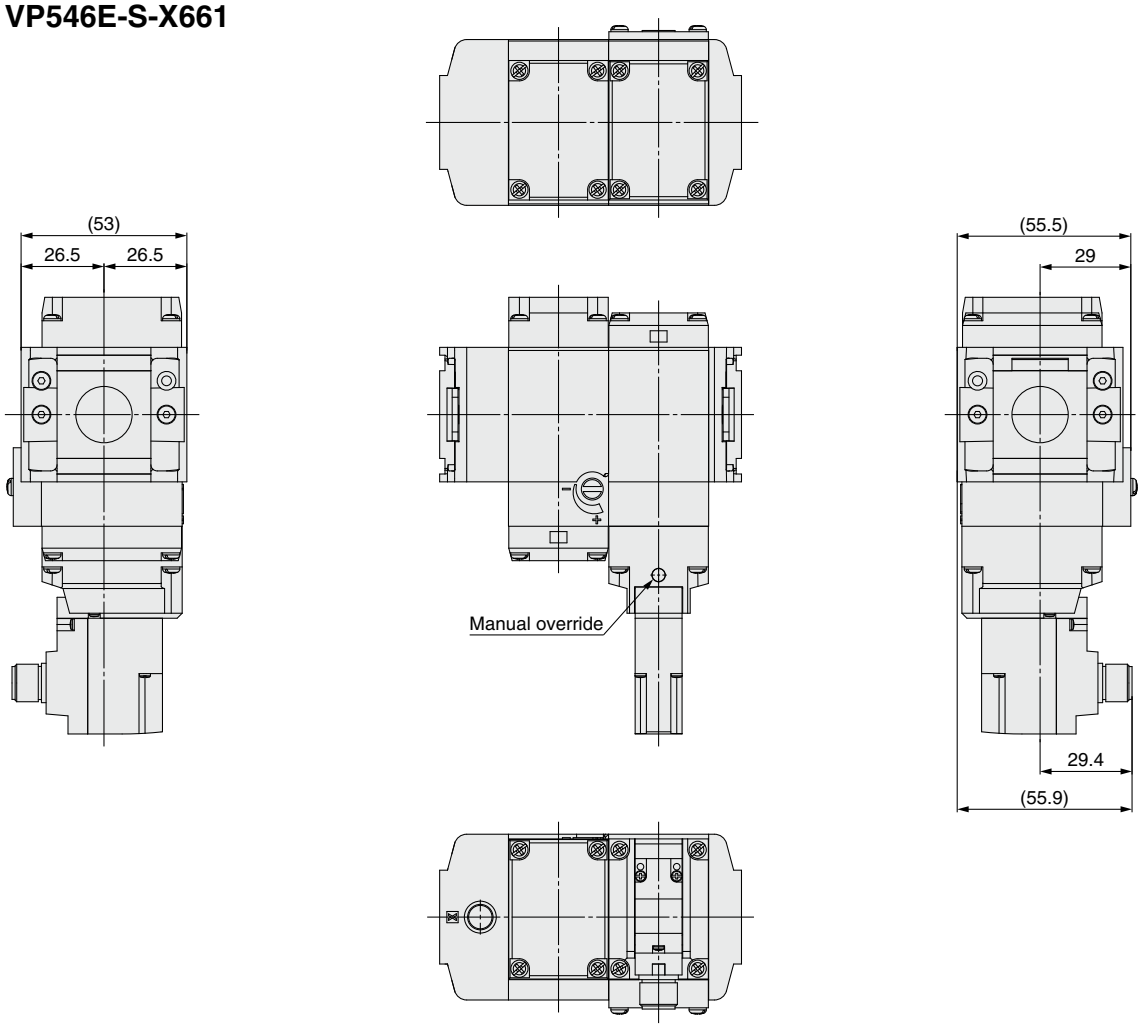


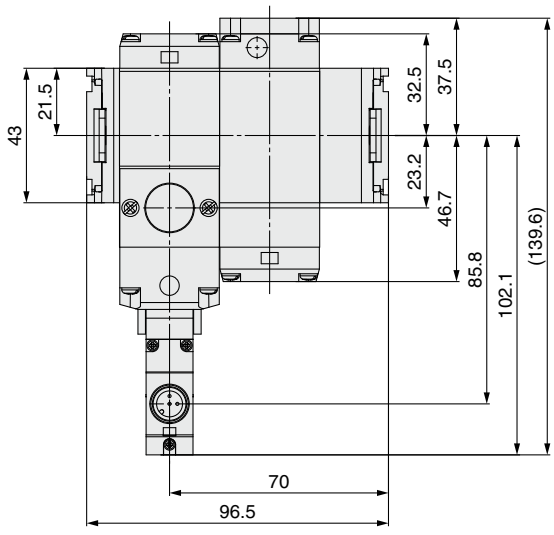
Manual Type E
(for manual operation)



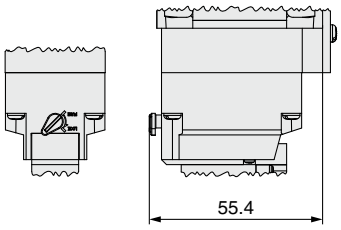
Dimensions

With soft start-up function
N.O. (Normally open)
VP546E-S-X661



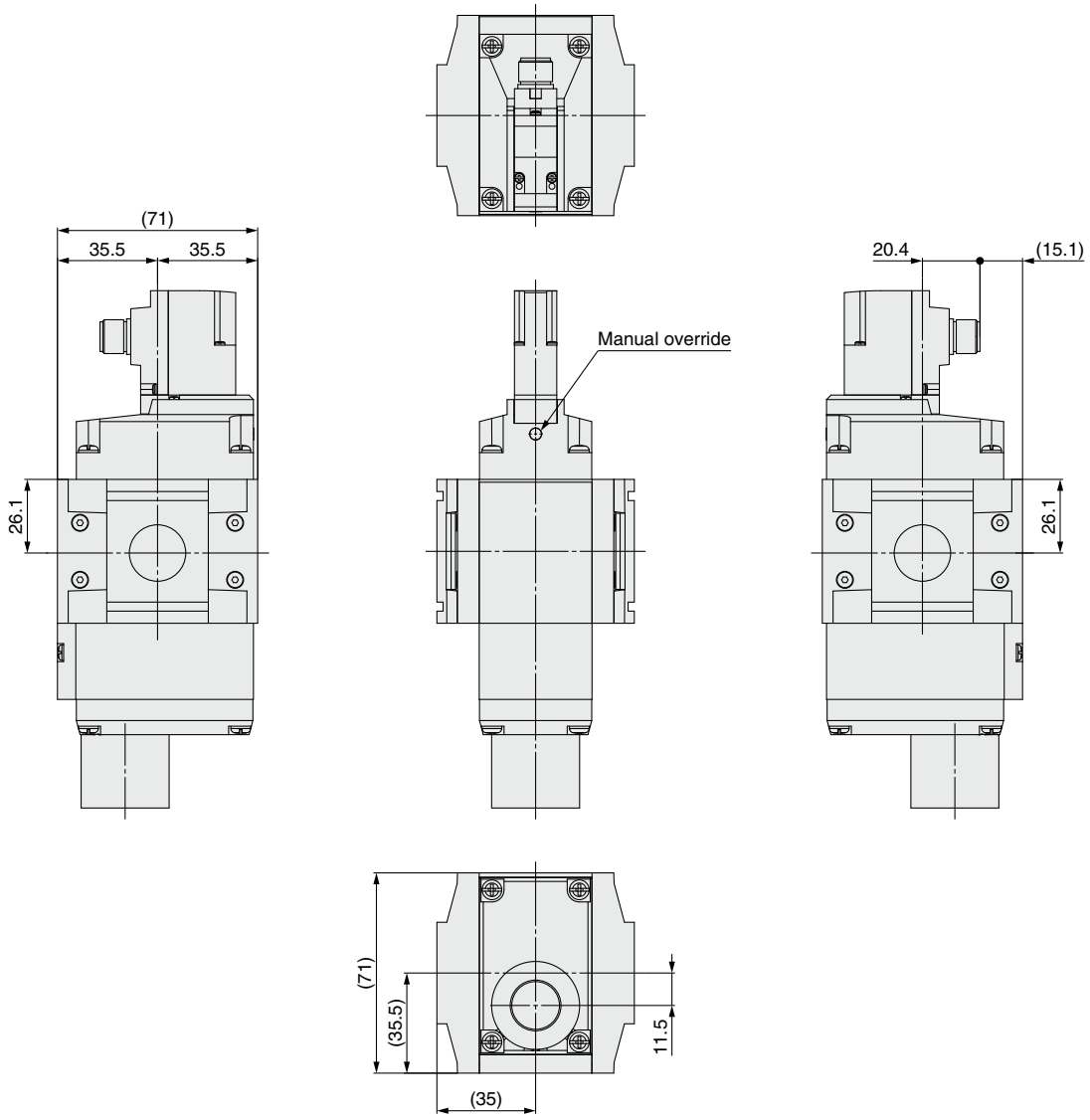


Manual Type E
(for manual operation)

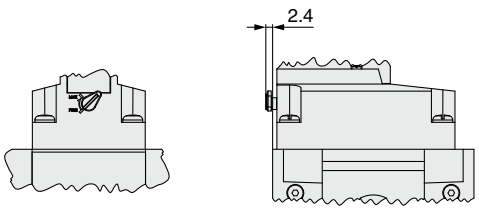


Dimensions

N.C. (Normally closed)
VP746E-X660

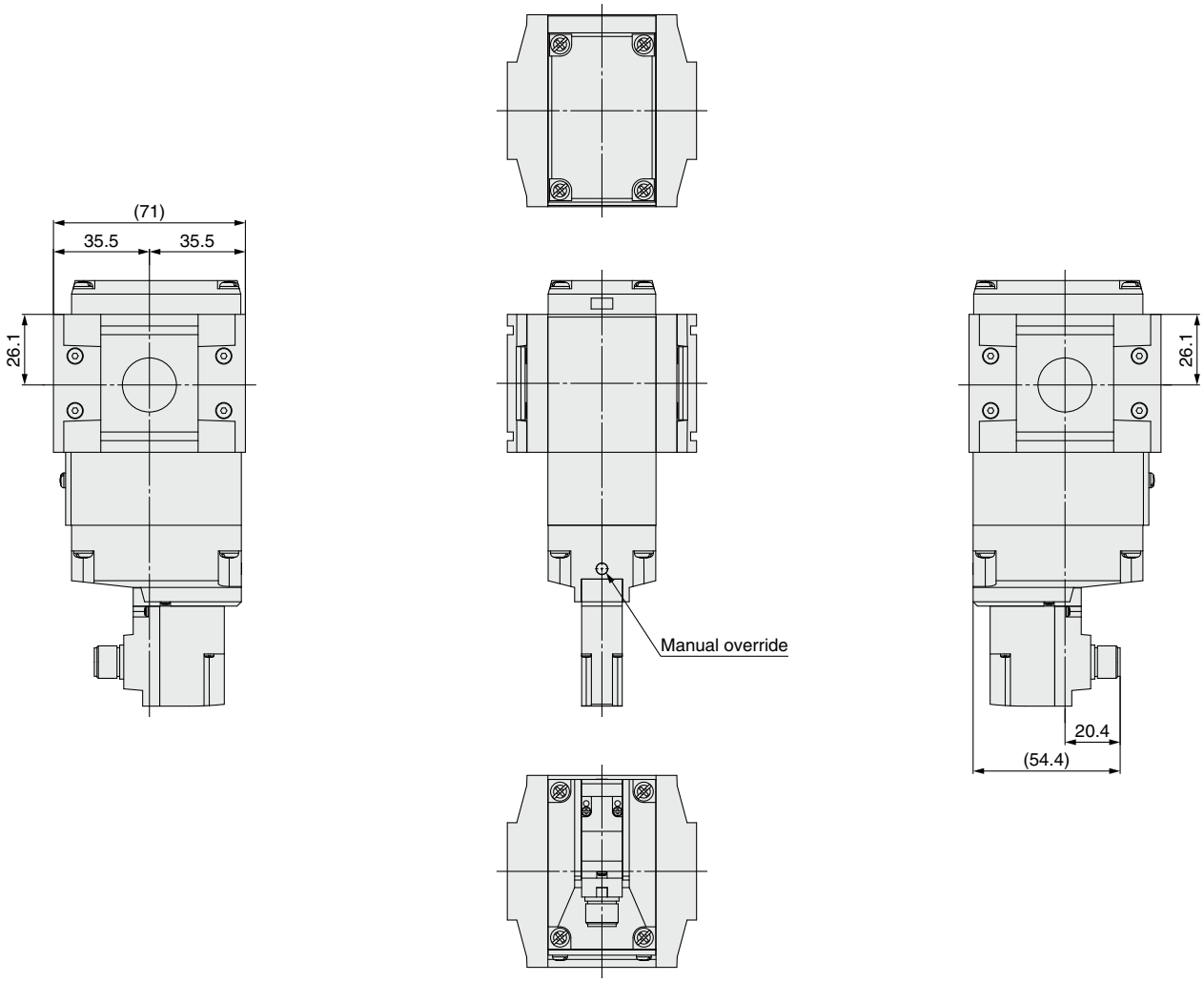


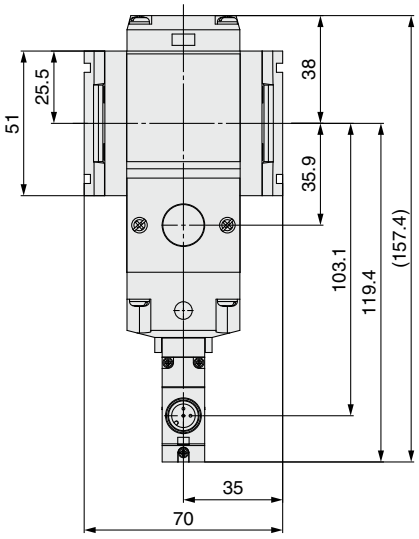
Manual Type E
(for manual operation)



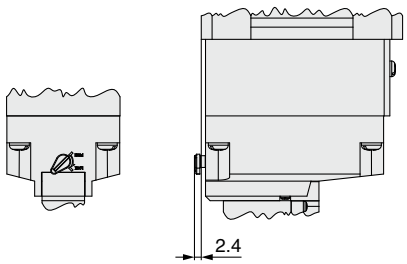
Dimensions

N.O. (Normally open)
VP746E-X661



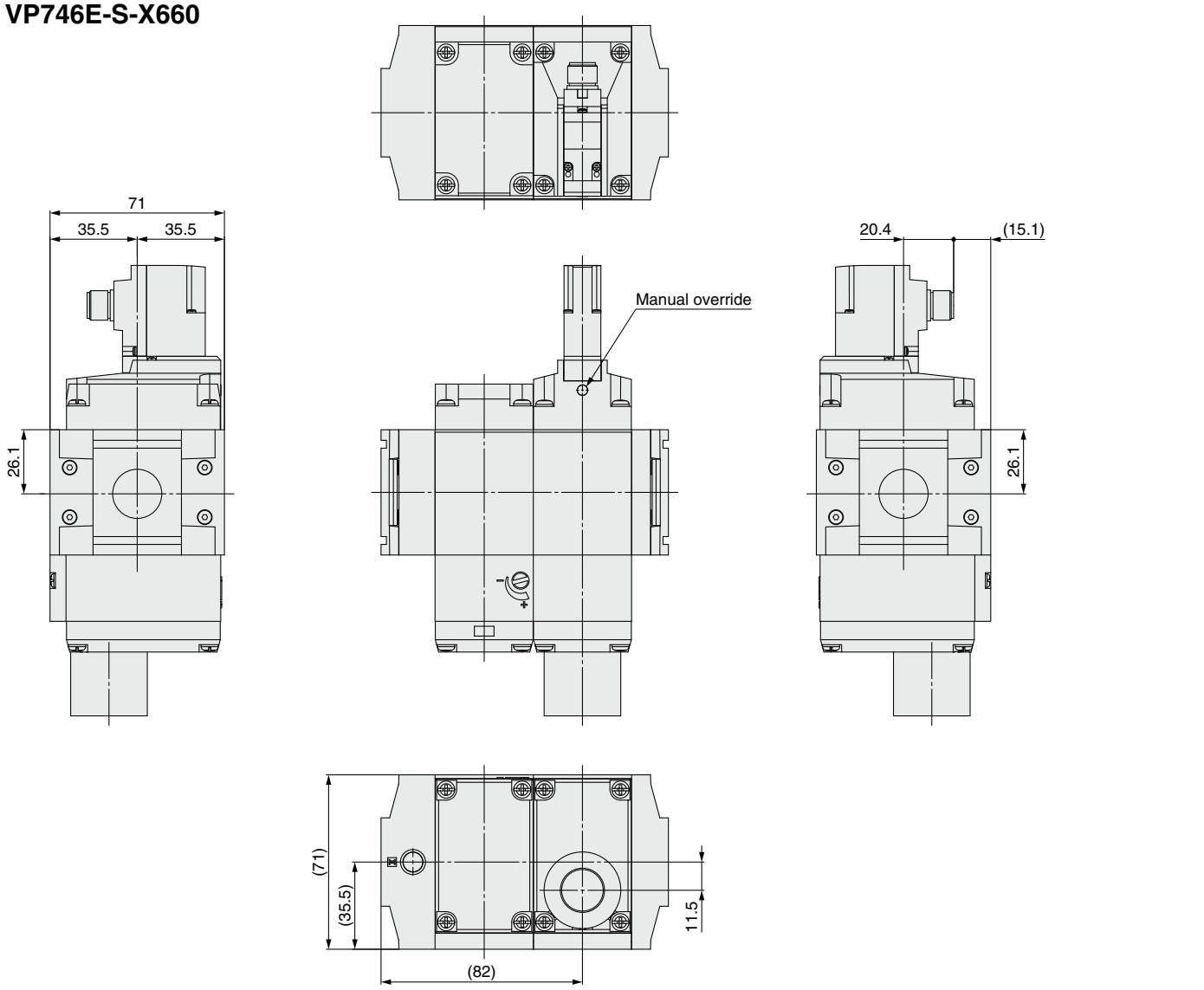


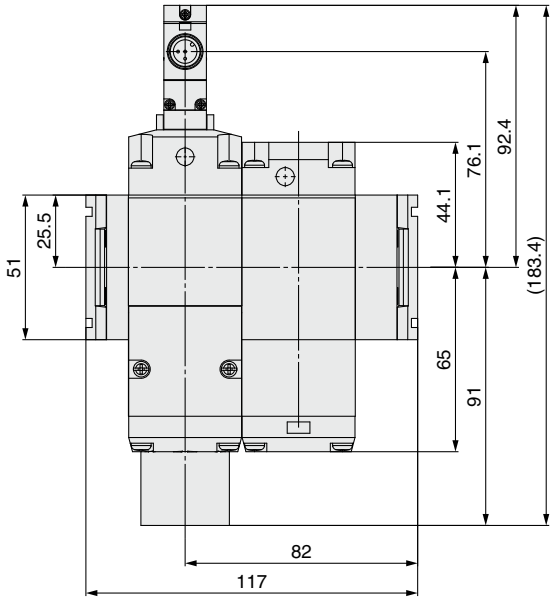
Manual Type E
(for manual operation)



Dimensions

With soft start-up function
N.C. (Normally closed)
VP746E-S-X660





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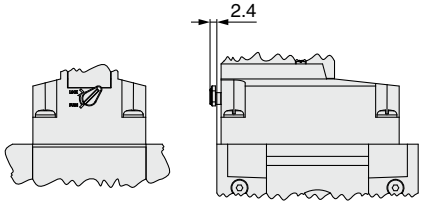
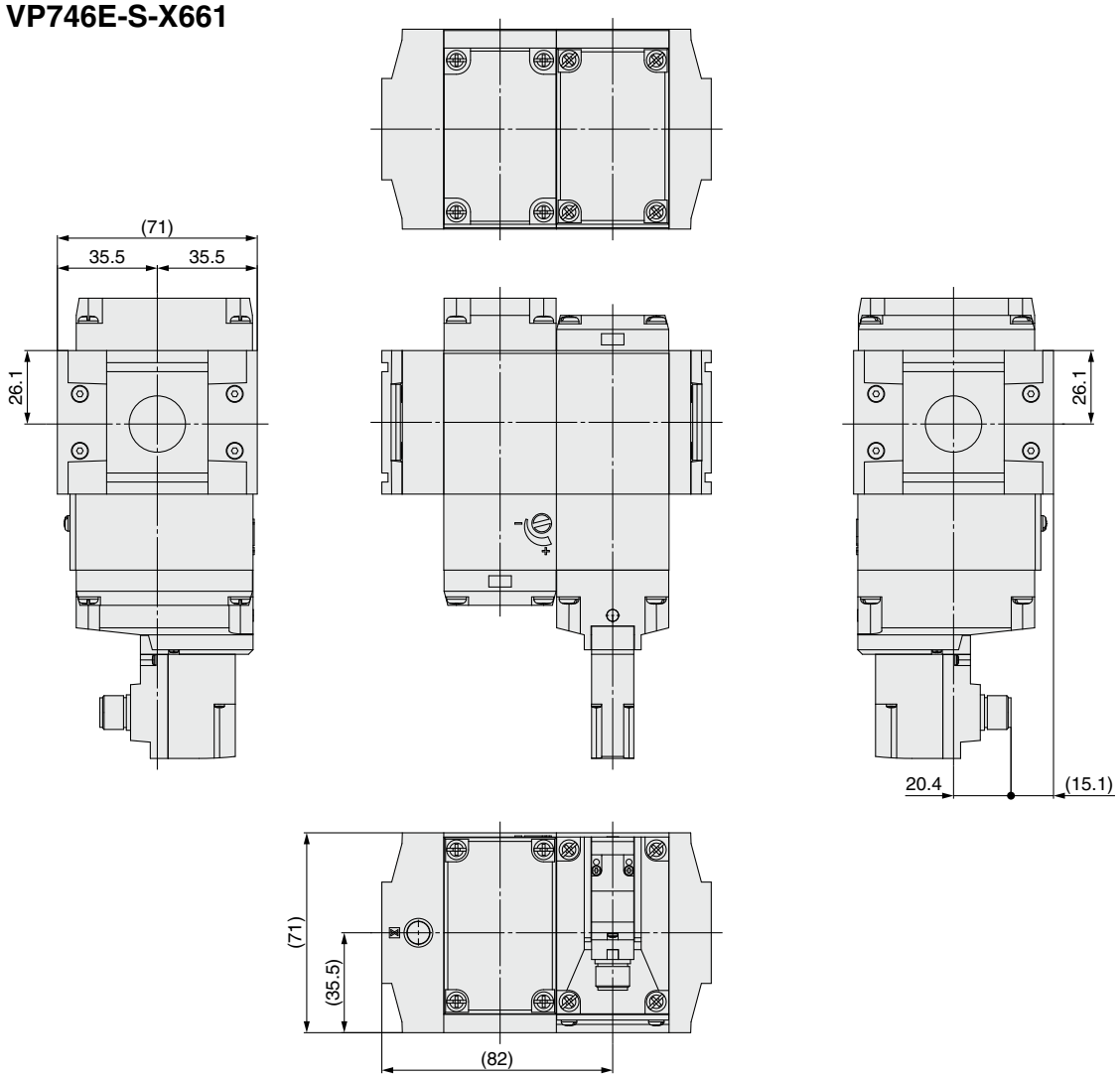
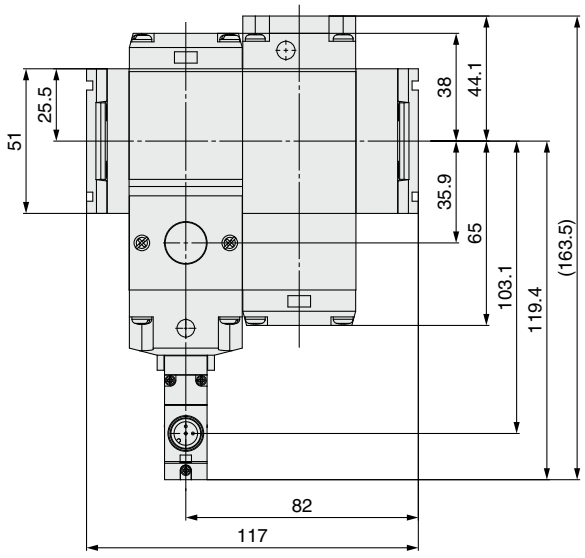
(for manual operation)



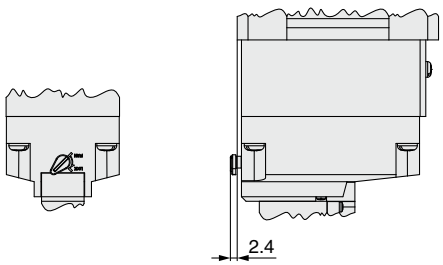
Dimensions

With soft start-up function
N.O. (Normally open)
VP746E-S-X661



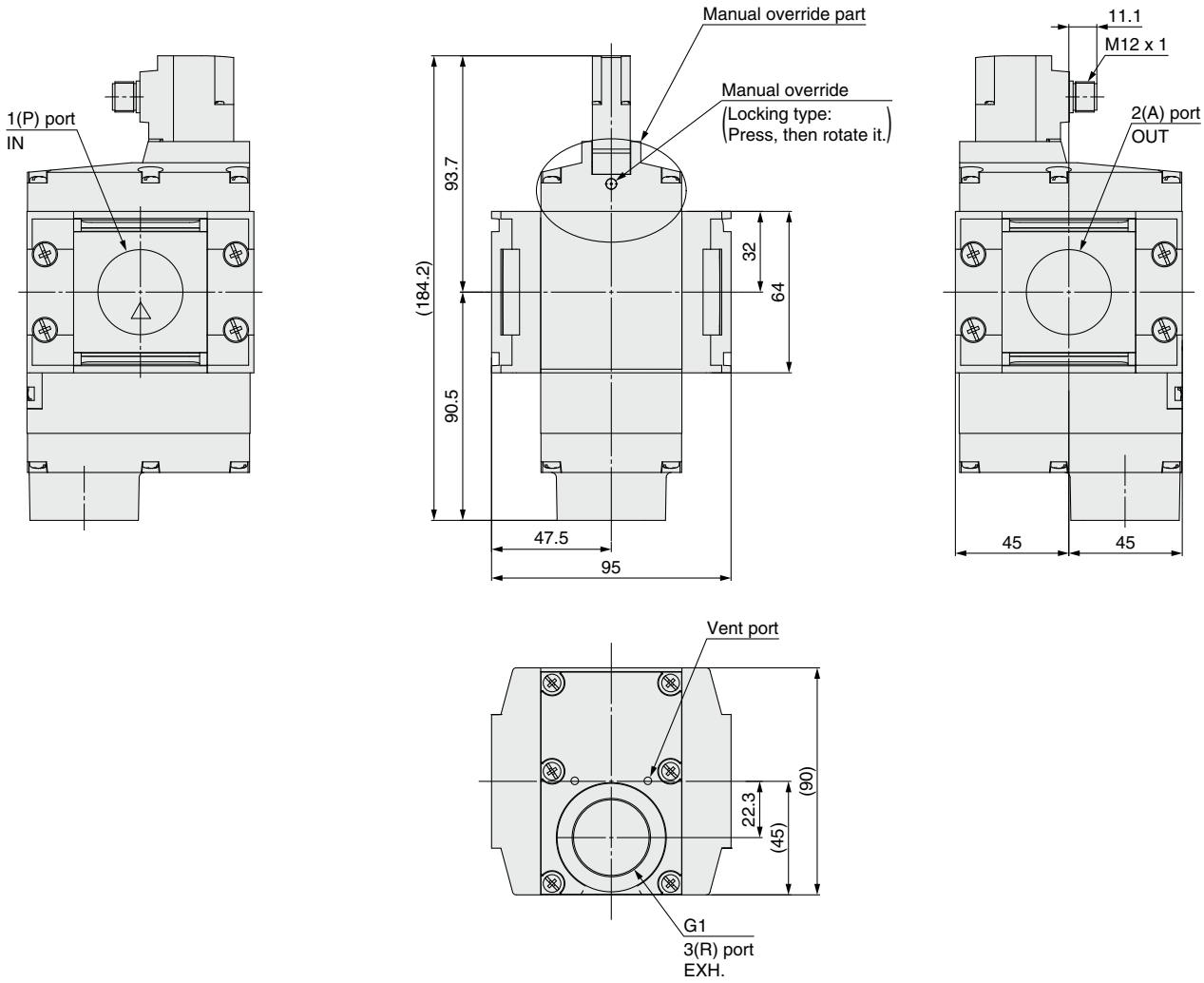


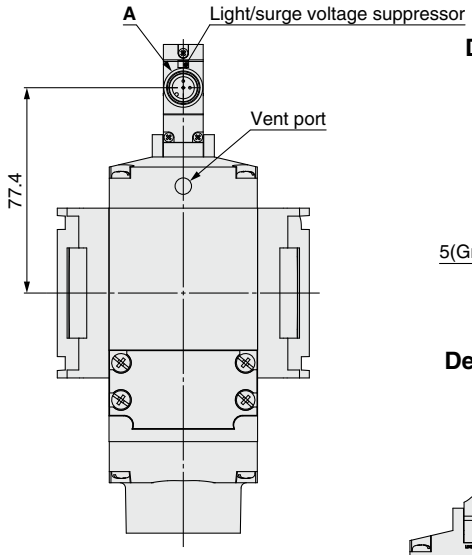
Manual Type E
(for manual operation)



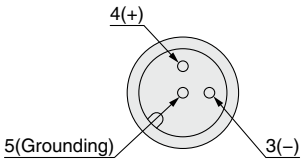
Dimensions

N.C. (Normally closed)
VP946E-X660

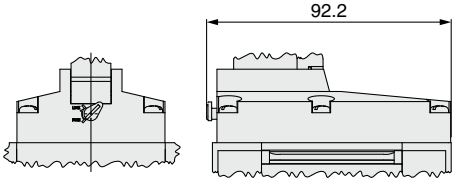




Detailed figure of A section
M12 connector

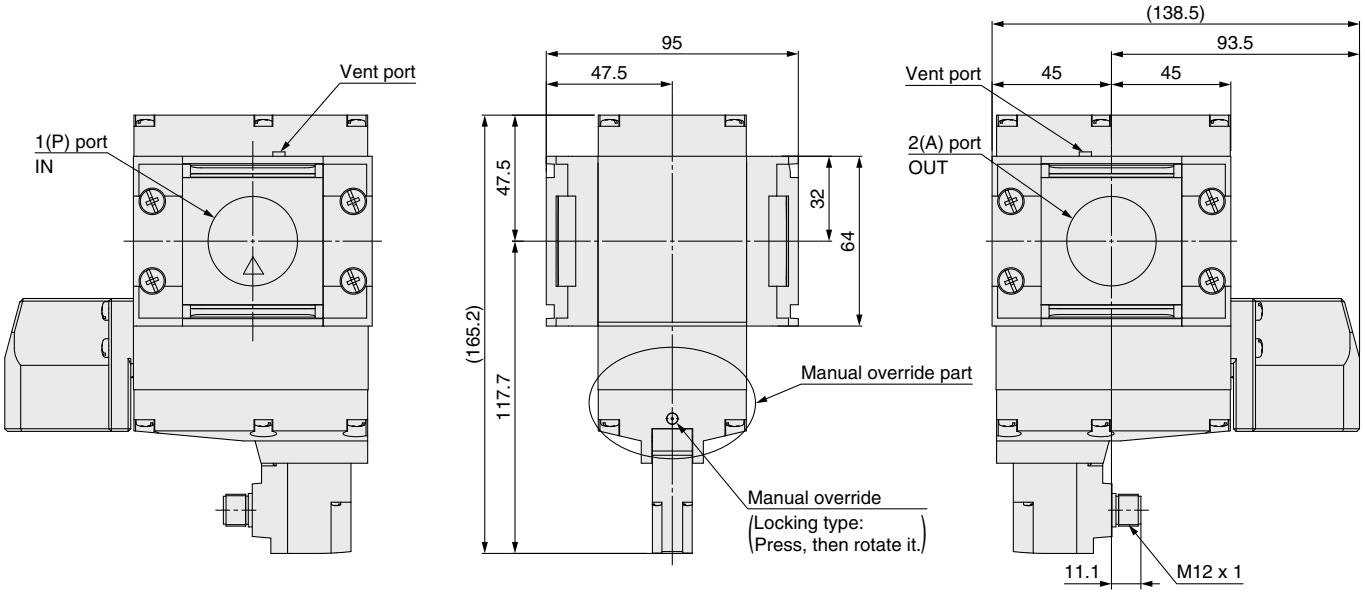


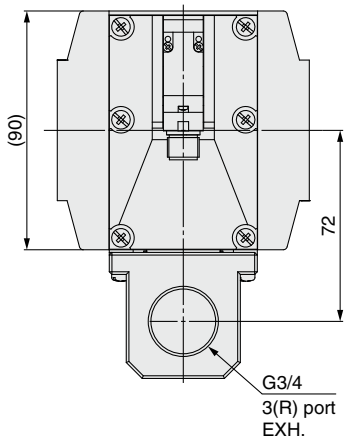
Details of manual override part
(for manual operation)
Type E

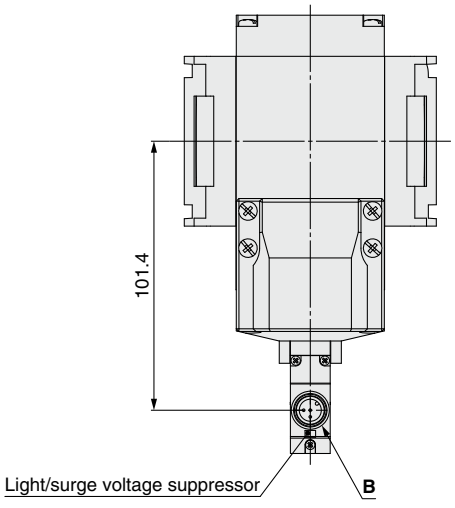


Dimensions

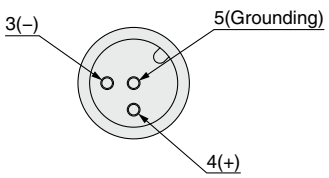
N.O. (Normally open)
VP946E-X661



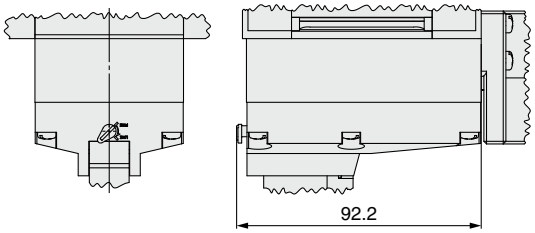




Detailed figure of B section
M12 connector

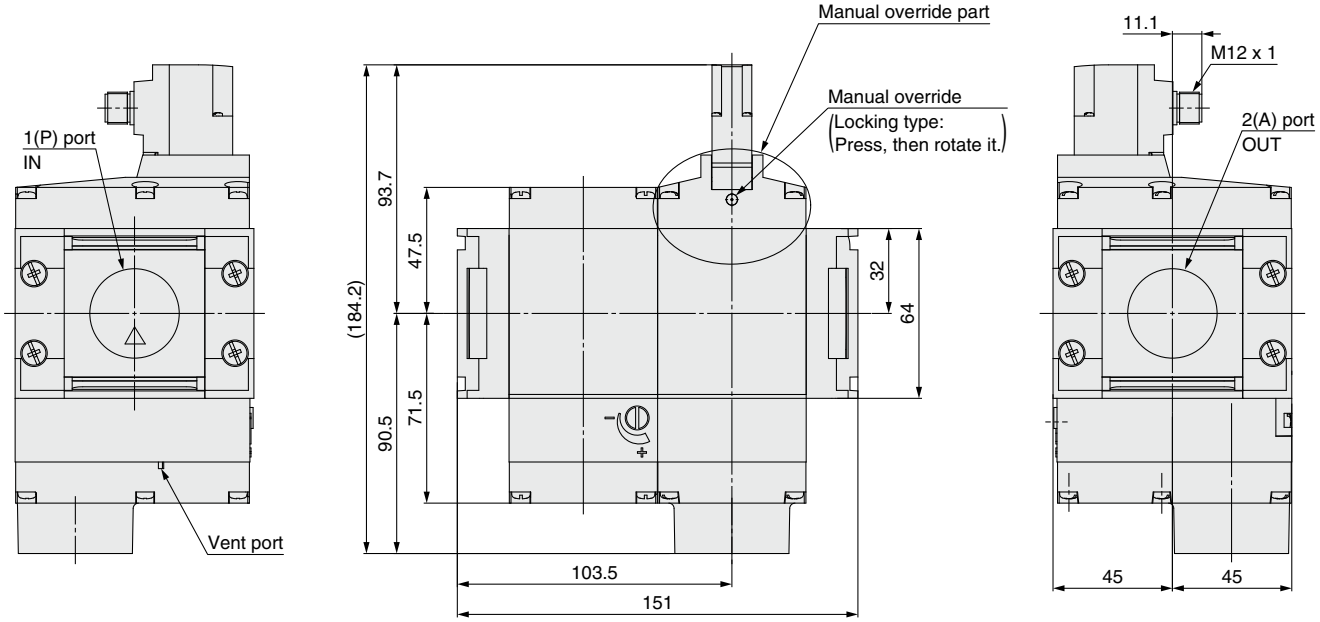


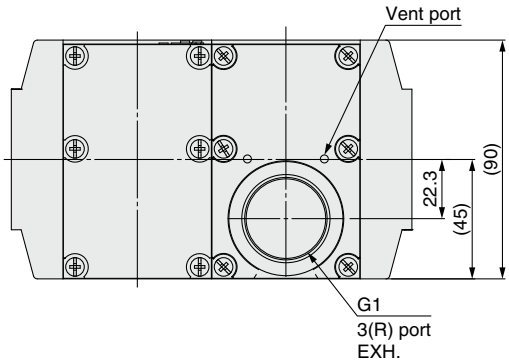
Details of manual override part
(for manual operation)
Type E

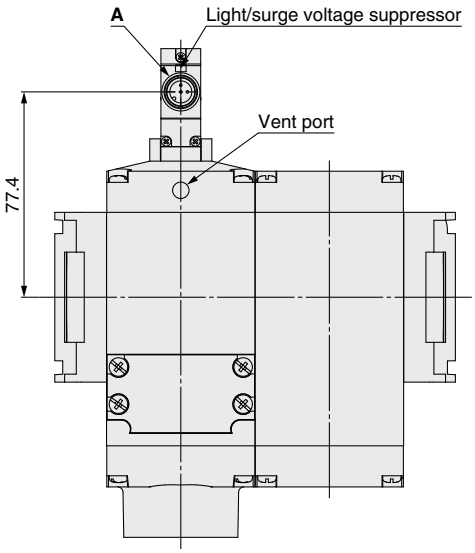


Dimensions

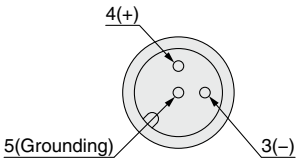
With soft start-up function
N.C. (Normally closed)
VP946E-S-X660



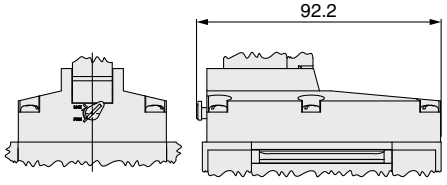




Detailed figure of A section
M12 connector

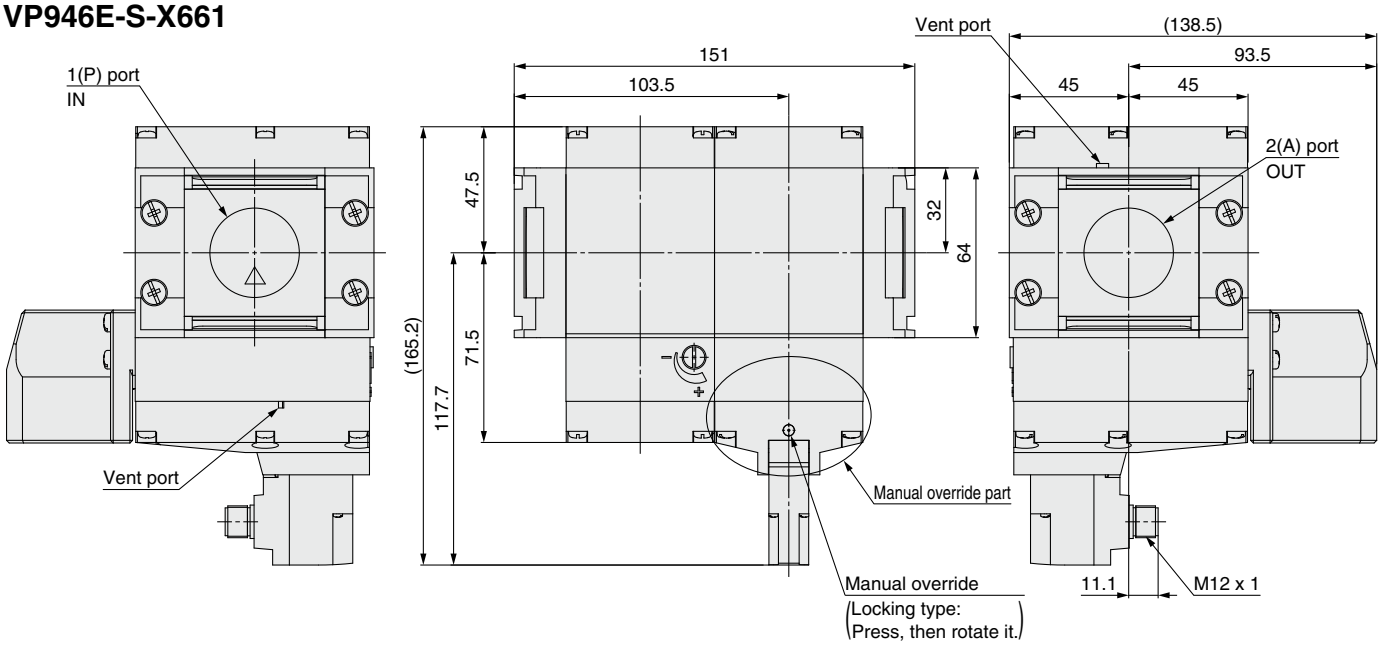


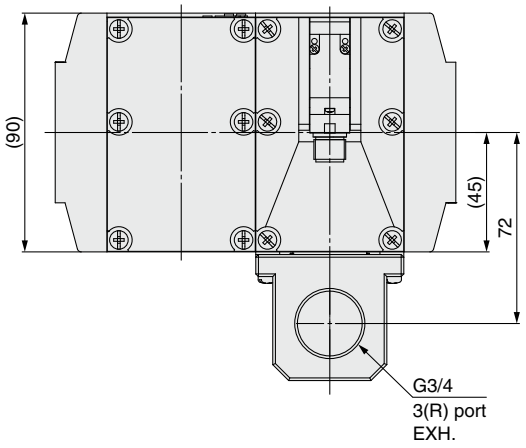
Details of manual override part
(for manual operation)
Type E

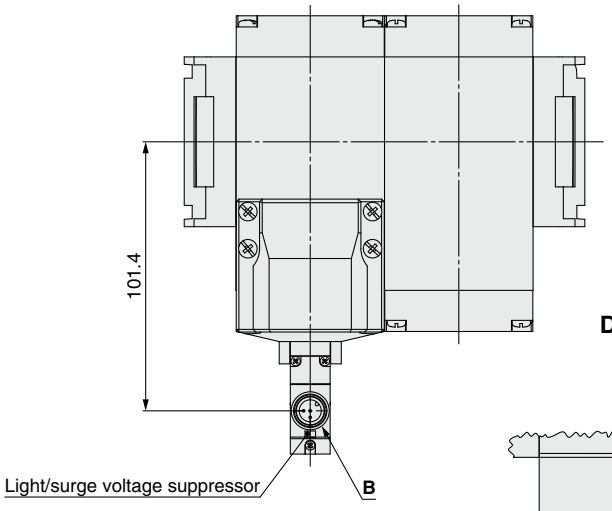


Dimensions

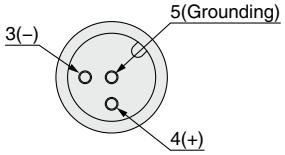
With soft start-up function
N.O. (Normally open)
VP946E-S-X661



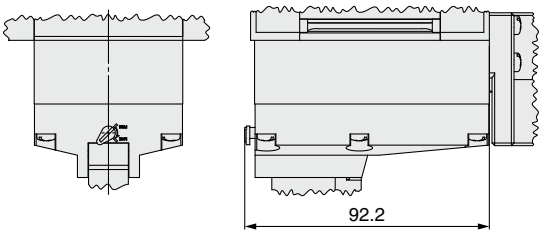




Detailed figure of B section
M12 connector



Details of manual override part
(for manual operation)
Type E



Optional Accessories

❶ Wireless Adapter

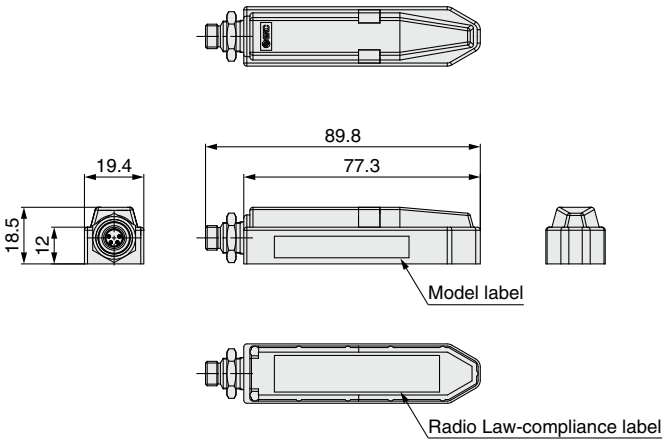
Wireless adapter for air management hub EXA1

EXW1-A11N-X1

Specifications

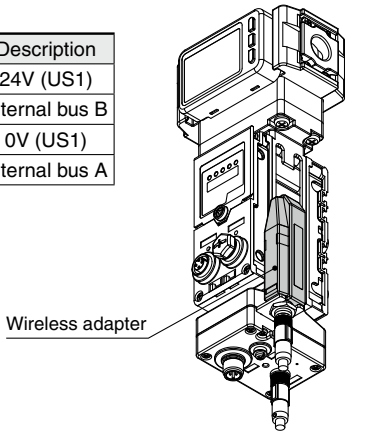
Item		Specifications
Wireless communication	Protocol	SMC original protocol (SMC encryption)
	Radio wave type (spread)	Frequency Hopping Spread Spectrum (FHSS)
	Frequency	2.4 GHz (2403 to 2481 MHz)
	Number of frequency channels	79 ch
	Channel bandwidth	1.0 MHz
	Communication speed	1 Mbps
	Communication distance	Approx. 100 m (Depending on the operating environment)
	Radio Law certificate	Refer to the SMC website for the latest information regarding in which countries the product is certified.
Electrical	Power supply voltage range	24 VDC +10% to 12 VDC −10%
	Current consumption	50 mA or less
General	Enclosure	IP67
	Ambient temperature (Operating temperature)	0 to 50°C
	Ambient temperature (Storage temperature)	−10 to 60°C
	Ambient humidity	35 to 85%RH (No condensation)
	Withstand voltage	500 VAC, 1 min
	Insulation resistance	500 VDC, 10 MΩ or more
	Vibration resistance	Conforms to EN 61131-2 5 < = f < 8.4 Hz 3.5 mm 8.4 < = f < 150 Hz 9.8 m/s²
	Impact resistance	Conforms to EN 61131-2 147 m/s², 11 ms
	Standards	CE/UKCA marking
	Weight	40 g

Please purchase an EXW1-AC-X1 connection cable separately.



Connector

M8, 4-pin, plug	Terminal no.	Description
	1	24V (US1)
	2	Internal bus B
	3	0V (US1)
	4	Internal bus A



❷ Seal Cap (10 pcs.)

Be sure to mount a seal cap on any unused I/O connectors.
Otherwise, the specified enclosure cannot be maintained.

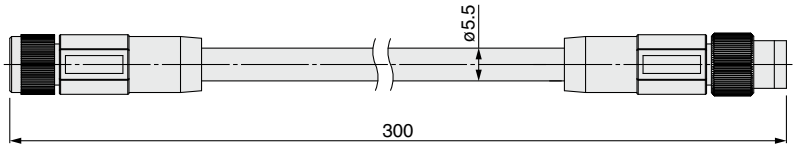
EX9-AWES
For M8

EX9-AWTS
For M12

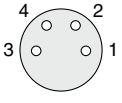
❸ Power Supply Cable (M8 connector, For EXW1-A11N-X1, With connectors on both sides (socket/plug))

EXW1-AC1-X1 Straight 0.3 m

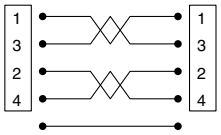
∗ This product must be used in a fixed position.



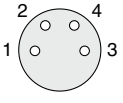
Socket connector pin arrangement



Terminal no. | Terminal no.



Plug connector pin arrangement



Connections

Item	Specifications
Cable O.D.	ø5.5 mm
Conductor nominal cross section	AWG24
Wire O.D. (Including insulator)	1.12 mm

❹ Power Supply Cable (M12 connector, For EXA1)

＊ The shape of the M12 connector is A-coded (Normal key).

EX500-AP 050 - S

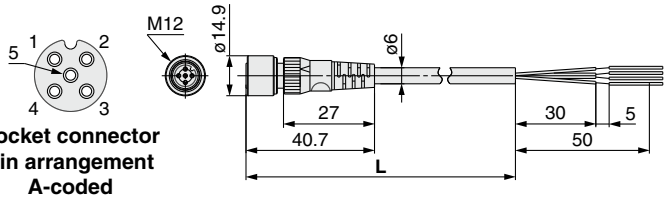
Cable length (L)

010	1000 mm
050	5000 mm

Connector specification

S	Straight
A	Angled

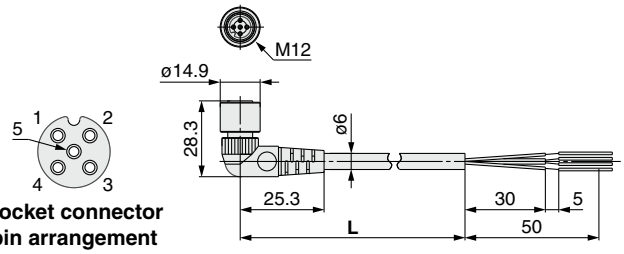
Straight connector type



Socket connector pin arrangement A-coded (Normal key)

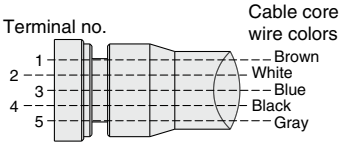
Item	Specifications
Cable O.D.	ø6 mm
Nominal cross section	0.3 mm²/AWG22
Wire diameter (Including insulator)	1.5 mm
Min. bending radius	40 mm (Fixed)

Angled connector type



Socket connector pin arrangement A-coded (Normal key)

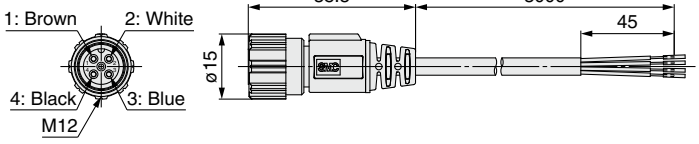
Item	Specifications
Cable O.D.	ø6 mm
Nominal cross section	0.3 mm²/AWG22
Wire diameter (Including insulator)	1.5 mm
Min. bending radius	40 mm (Fixed)



Connections

ZS-37-A
Lead wire with M12 connector

Pin no.	Pin name	Wire color
1	DC(+)	Brown
2	FUNC	White
3	DC(–)	Blue
4	OUT(C/Q)	Black

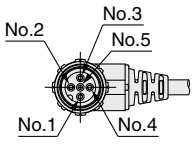


Cable Specifications

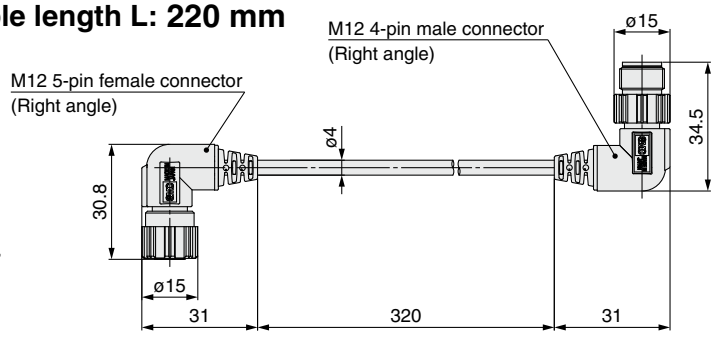
Item		Specifications
Conductor	**Nominal cross section**	AWG23
Insulator	**Outside diameter**	Approx. 1.1 mm
	Color	Brown, Blue, Black, White
Sheath	**Finished outside diameter**	ø4

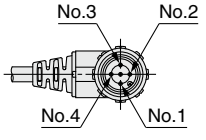
❺ Connection Cable for Standby Regulator/Residual Pressure Relief Valve (With M12 angle connectors on both sides (male/female))

EXA1-AC1 Cable length L: 320 mm
EXA1-AC2 Cable length L: 220 mm

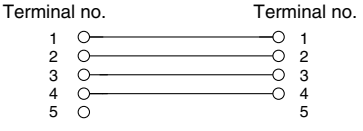


M12 5-pin female connector pin assignment



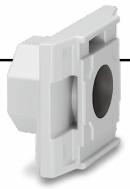


M12 4-pin male connector pin assignment



Connections

❻ Piping Adapter



A piping adapter allows for the installation/removal of the component without removing the piping and thus makes maintenance easier.

E 200 - □ 01 -D

Applicable size

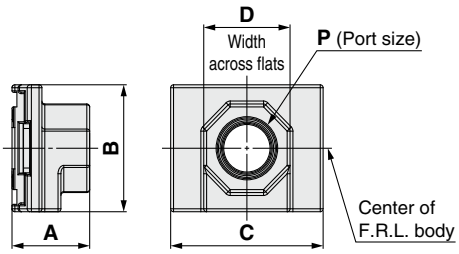
200	AMS20
300	AMS30
400	AMS40
600	AMS60

Thread type

Symbol	Thread type
Nil	Rc
F	G
N	NPT

Port size

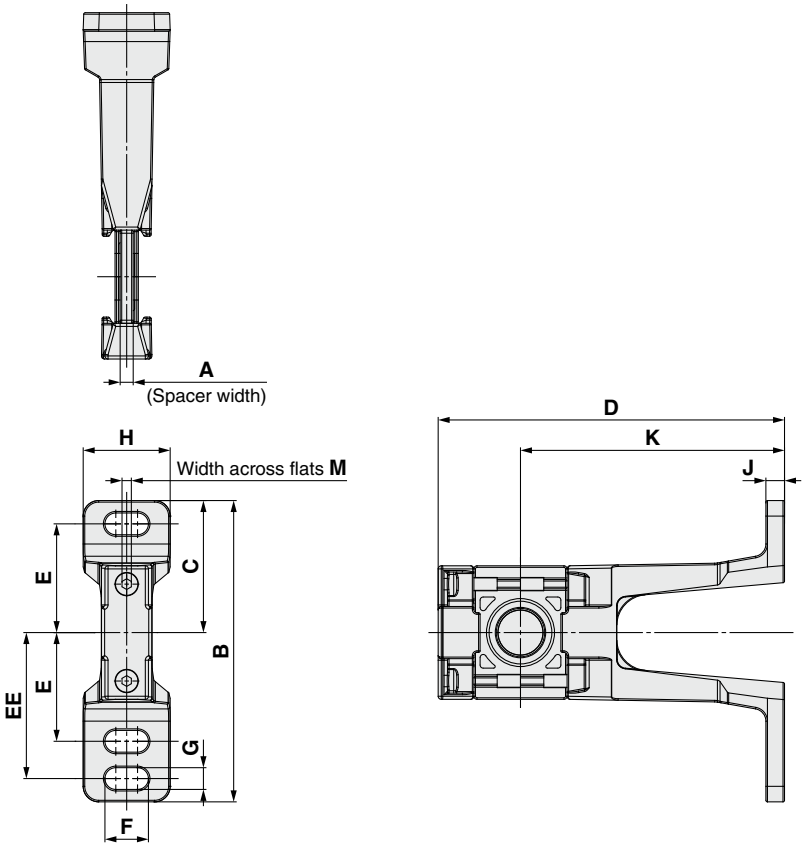
Symbol	Port size	AMS20	AMS30	AMS40	AMS60
01	1/8	●			
02	1/4	●	●		
03	3/8		●	●	
04	1/2			●	
06	3/4				●
10	1				●



Model	P	A	B	C	D
E200-□01	1/8	24	35	42	24
E200-□02	1/4	24	35	42	24
E300-□02	1/4	27	43	53	30
E300-□03	3/8	27	43	53	30
E400-□03	3/8	30	51	71	36
E400-□04	1/2	30	51	71	36
E600-□06	3/4	39	64	90	46
E600-□10	1	39	64	90	46

∗ A spacer with bracket is required for modular unit.

❼ Spacer with Bracket

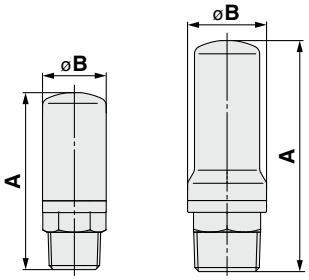


Model	A	B	C	D	E	EE	F	G	H	J	K	M	Applicable size
Y200T-2-D	3.2	97	42.5	106	35	47	14	7	28	6	85	2	**AMS20**
Y300T-2-D	4.2	97	42.5	111.5	35	47	14	7	28	6	85	3	**AMS30**
Y400T-1-D	5.2	115	50	120.5	40	55	18	9	32	7	85	3	**AMS40**
Y600T-2-D	6.2	140	60	145	50	70	20	11	37	8	100	4	**AMS60**

❽ Silencer

Compact Resin Type

AN20 **AN30, AN40**

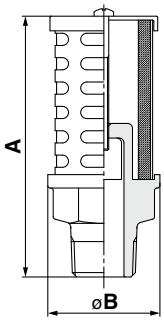


Dimensions [mm]

Model	Port size R	A	B
AN20-02	1/4	45	16.5
AN30-03	3/8	58.5	20
AN40-04	1/2	68	24

Metal Body Type

AN500, 600

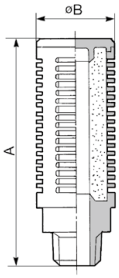


Dimensions [mm]

Model	Port size R	A	B
AN500-06	3/4	107	46
AN600-10	1	127	50

High Noise Reduction Type

AN202 to 402

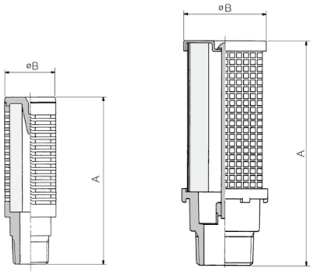


Dimensions [mm]

Model	Port size R	A	B
AN202-02	1/4	64	22
AN302-03	3/8	84	28
AN402-04	1/2	95	34

High Noise Reduction Type

ANA1-06 **ANA1-10**



Dimensions [mm]

Model	Port size R	A	B
ANA1-06	3/4	111	46
ANA1-10	1	132	50

Compatibility Chart for Residual Pressure Relief Valve and Silencers

	Silencer	Compact resin type			Metal type		High noise reduction type				
	Model	**AN20-02**	**AN30-03**	**AN40-04**	**AN500-06**	**AN600-10**	**AN202-02**	**AN302-03**	**AN402-04**	**ANA1-06**	**ANA1-10**
	Port size	1/4	3/8	1/2	3/4	1	1/4	3/8	1/2	3/4	1
VP346E	X660 (N.C.)	○	—	—	—	—	○	—	—	—	—
	X661 (N.O.)	○	—	—	—	—	—	—	—	—	—
VP546E	X660 (N.C.)	—	○	—	—	—	—	○	—	—	—
	X661 (N.O.)	—	○	—	—	—	—	—	—	—	—
VP746E	X660 (N.C.)	—	—	○	—	—	—	—	○	—	—
	X661 (N.O.)	—	○	—	—	—	—	—	—	—	—
VP946E	X660 (N.C.)	—	—	—	—	○	—	—	—	—	○
	X661 (N.O.)	—	—	—	○	—	—	—	—	○	—

⚠ 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.

⚠ 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.

*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 10218-1: Manipulating industrial robots – Safety.
etc.

⚠ 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.

⚠ Caution

1. 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.*2)
   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.

*2) **Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

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 regulations 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.

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

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