

Air Tank

Series VBAT



How to Order

Made to Order
(For details, refer to page 11.)

VBAT 10 A 1 S

Tank inner volume

Symbol	Inner volume
05	5 ℓ
10	10 ℓ
20	20 ℓ
38	38 ℓ

Material

Symbol	Material
A	Carbon steel (SS400)
S	Stainless steel 304

Thread type

Symbol	Thread type
Nil	Rc
F	G
N	NPT

Note) Name label of NPT thread products: psi only (The psi unit cannot be used in Japan.)

Option

Symbol	Option
Nil	None
V	Drain valve

Overseas-compatible product

Symbol	Standards
Nil	Standard
Q	CE marking

* Refer to page 13 for other overseas-compatible products.

Option

Symbol	Option	Applicable model
Nil	None	All models
R	Safety valve (Set pressure 1 MPa)	VBAT20A VBAT38A
S	Safety valve (Set pressure 2 MPa)	VBAT05A VBAT10A

Note 1) The safety valve is not applicable for copper-free, fluorine-free specification (20-).

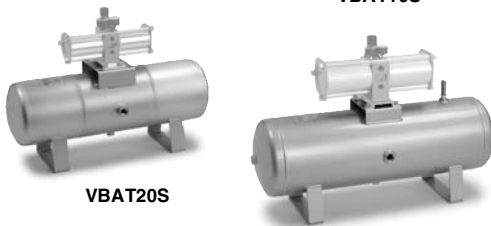
Note 2) A safety valve port is provided only when option R or S is selected.

- Compact connections are possible with booster regulators.
- It can be used alone as a tank.
- Also compatible with overseas standards (Refer to page 13 for details.)



VBAT05A

VBAT10S



VBAT20S

VBAT38A

Specifications and option combinations

Option	Material A: Carbon steel S: Stainless steel	Option		Thread type		
		Safety valve	Drain valve	Rc	G	NPT
Standard VBAT□	A	○	○	●	—	—
	S	—	○	●	—	—
Overseas-compatible product: CE marking ^{Note 1)}	A	●	●	○	○	—
Overseas-compatible special product: ASME ^{Note 2)}	A	●	●	○	—	○
Made to Order: Copper-free/Fluorine-free 20-VBAT□	A	—	○ ^{Note 3)}	●	—	—
	S	—	○ ^{Note 3)}	●	—	—

Note 1) Tanks for overseas are only carbon steel products.

Note 2) Tank volumes are only 5 ℓ or 10 ℓ.

Note 3) Drain valve material is made of stainless steel.

Model (Carbon Steel)

Model	VBAT05A	VBAT10A	VBAT20A	VBAT38A
Fluid	Compressed air			
Tank capacity (ℓ)	5	10	20	38
Max. operating pressure ^{Note)} (MPa)	2.0		1.0	
IN port size (Rc)	3/8	3/8	1/2	1/2
OUT port size (Rc)	3/8	1/2	1/2	3/4
Ambient and fluid temperature (°C)	0 to 75			
Weight (kg)	6.6	10.0	14.0	21.0
Material	Carbon steel			
Paint	Outside: Silver paint, Inside: Rustproof paint			

Note) When used as a single unit and pressurized at over 1 MPa at normal temperatures (the booster valve is not connected), the air tank falls under the scope of the "High Pressure Gas Safety Act" in Japan.

* Accessories and options are included in the same container.

Model (Stainless Steel)

Model	VBAT05S	VBAT10S	VBAT20S	VBAT38S
Fluid	Compressed air			
Tank capacity (ℓ)	5	10	20	38
Max. operating pressure ^{Note)} (MPa)	2.0			
IN port size (Rc)	3/8	3/8	1/2	1/2
OUT port size (Rc)	3/8	1/2	1/2	3/4
Ambient and fluid temperature (°C)	0 to 75			
Weight (kg)	3.2	4.9	12.0	19.0
Material	Stainless steel			

Note) When used as a single unit and pressurized at over 1 MPa at normal temperatures (the booster valve is not connected), the air tank falls under the scope of the "High Pressure Gas Safety Act" in Japan.

* Accessories and options are included in the same container.

⚠ Caution

When used as a single unit and pressurized at over 1 MPa at normal temperatures (the booster valve is not connected), the air tank falls under the scope of the "High Pressure Gas Safety Act" in Japan.

Series VBAT

List of Air Tank for Overseas

The pressure vessel law is different from country to country, so an air tank suitable to a country needs to be manufactured.

Please select from the below table. For details on all products except for CE markings, please contact SMC.

Country/Region	Law	Exportable models	Details
EU	CE Marking Simple Pressure Vessels Directive	VBAT05A-SV-Q, VBAT05AF-SV-Q	Applicable product Self-declaration document attached (The G-thread type is 6 mm longer due to plug type differences.)
		VBAT10A-SV-Q, VBAT10AF-SV-Q	
		VBAT20A-RV-Q, VBAT20AF-RV-Q	
		VBAT38A-RV-Q, VBAT38AF-RV-Q	
South Korea	High Pressure Gas Safety Management Law Industrial Safety Health Law	VBAT05A-RV-X101, VBAT05S-V-X101	Exemption Maximum operating pressure: 0.97 MPa
		VBAT10A-RV-X101, VBAT10S-V-X101	
		VBAT20A-RV-X101, VBAT20S-V-X101	
		VBAT38A-RV-X101, VBAT38S-V-X101	
Singapore, Malaysia	Factory Act	VBAT05A-SV-X102	Applicable product Product complies with ASME specifications JBA (Japan Boiler Association) certification attached
		VBAT10A-SV-X102	
		VBAT20A-RV-X102	
		VBAT38A-RV-X102	
U.S.A.	ASME standard Industrial Safety and Health Law	VBAT05AN-SV, VBAT05A-SV	Exemption (The dimensions of VBAT10-X11 are not the same as the standard dimensions.)
		VBAT10AN-SV-X11, VBAT10A-SV-X11	
Thailand, Taiwan	No applicable specifications	Standard product	—

VBAT□A (Carbon Steel) Accessories/Part No.

Model	VBAT05A	VBAT10A	VBAT20A	VBAT38A
Accessory kit number contains a set of the following parts ① to ③.	VBAT5A-Y-3	VBAT10A-Y-3	VBAT20A-Y-3	
① O-ring for connection ^{Note}	I.D. = 18 W = 2.4	I.D. = 18 W = 2.4 I.D. = 18 W = 6	I.D. = 18 W = 6	
② Anchor bolt/Nut (4 pcs.)	No accessories		M12 (Steel)	
③ Drain port plug (1 pc.)	Hexagon socket head taper screwed plug R 1/4 (Steel)			

Note) Equipped with an ozone-resistant O-ring.

VBAT□S (Stainless Steel) Accessories/Part No.

Model	VBAT05S	VBAT10S	VBAT20S	VBAT38S
Accessory kit number contains a set of the following parts ① to ③.	VBAT5S-Y-4	VBAT10S-Y-4	VBAT20S-Y-4	
① O-ring for connection ^{Note}	I.D. = 18 W = 2.4	I.D. = 18 W = 2.4 I.D. = 18 W = 6	I.D. = 18 W = 6	
② Anchor bolt/Nut (4 pcs.)	No accessories		M12 (Stainless steel)	
③ Drain port plug (1 pc.)	Hexagon socket head taper screwed plug R 1/4 (Stainless steel)			

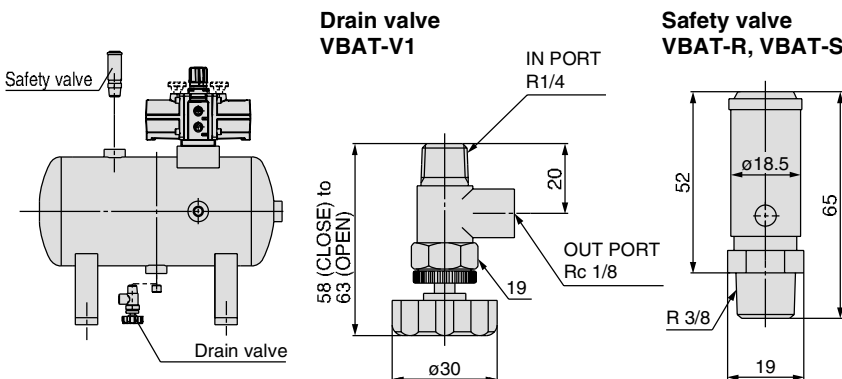
Note) Equipped with an ozone-resistant O-ring.

Options/Part No.

Model	VBAT05A	VBAT10A	VBAT20A	VBAT38A
Safety valve (Set pressure 1 MPa) ^{Note 1) Note 2)}	—		VBAT-R	
Safety valve (Set pressure 2 MPa) ^{Note 1) Note 2)}	VBAT-S			
Drain valve	VBAT-V1			

Note 1) The set pressure of the safety valve cannot be changed.

Note 2) The safety valve is a safety measure that protects the tank from excess pressure. The valve opens automatically when the specified pressure is reached, releasing excess pressure inside the tank. The valve closes again when the pressure drops below a designated value. Select a pressure valve appropriate for the maximum operating pressure specification of the tank.



Design

⚠ Warning

1. Operating pressure

- Operate this product at or below the maximum operating pressure. If it is necessary, take appropriate safety measures to ensure that the maximum operating pressure is not exceeded.

• When the tank alone is used

- Use a pressure switch or a safety valve to make sure that the maximum operating pressure is not exceeded.

2. Connection

- Connect a filter or a mist separator to the OUT side of the tank. Because the inner surface of the tank is untreated, there is a possibility of dust flowing out to the outlet side.
- Using tank accessories, a VBA booster regulator can be connected directly in the combinations indicated below.

		Booster regulator		
		VBA10A VBA1111	VBA2□A	VBA4□A
Air tank	VBAT05A VBAT05S	●	—	—
	VBAT10A VBAT10S	●	●	—
	VBAT20A VBAT20S	—	●	●
	VBAT38A VBAT38S	—	●	●

Selection

⚠ Caution

- Consider the operating conditions and operate this product within the specification range.
- When using the air tank with a booster valve, refer to "Sizing" on page 6 or SMC Pneumatic System Energy Saving Program.

Mounting

⚠ Caution

1. Accessories

- See the operating manual (VBAT-M1, VBAT-M2, VBAT-M3, VBAT-M4) regarding combining booster regulators with older model air tanks.
- The accessories are secured by bands to the feet of the tank. Once removed, make sure not to lose them.

2. Installation

- Tank should be installed away from people. It is dangerous if the accumulated air inside the tank were to seep out.
- Do not mount the air tank on a moving part or a place with vibration.
- When connecting a booster regulator with the tank, refer to the operating manual first, which is provided with the air tank before assembling.
- Refer to the operating manual regarding mounting methods when using long bolts.
- To mount the air tank on a floor surface, use the four holes to secure the tank with bolts or anchor bolts.

Maintenance

⚠ Warning

1. Inspection

- The use of pressure vessels could lead to an unexpected accident due to external damage or internal corrosion caused by drainage. Therefore, make sure to check periodically for external damage, or the extent of internal corrosion through the port hole. An ultrasonic thickness indicator may also be used to check for any reduction in material thickness.

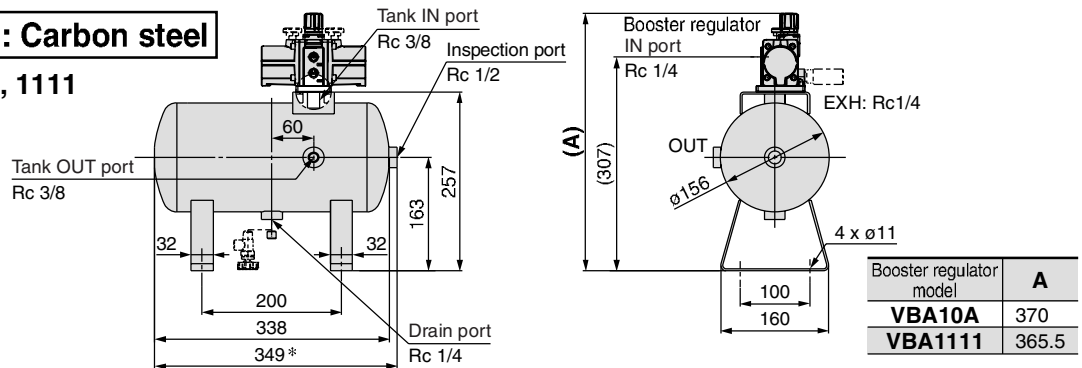
2. Draining

- If this product is used with a large amount of drainage, the drainage could flow out, leading to equipment malfunction or corrosion inside the tank. Therefore, drain the system once a day.

Dimensions

VBAT05A Material: Carbon steel

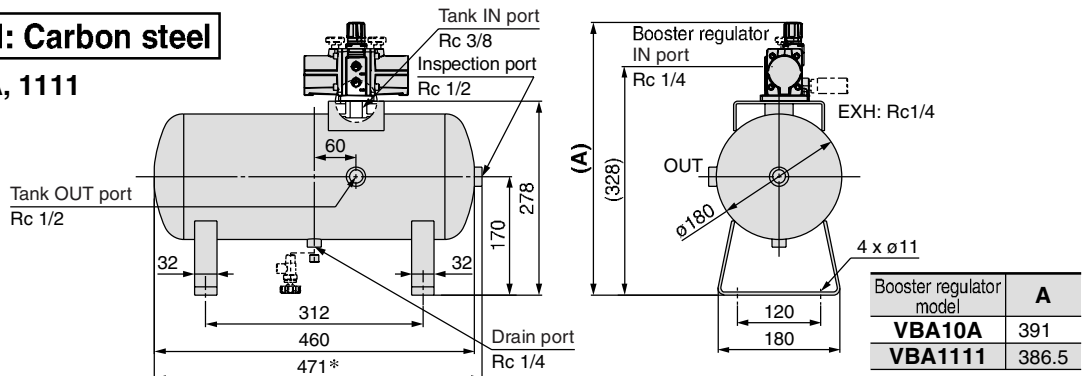
Connected to VBA10A, 1111



* The length may be longer than the specification if the plugs mounted on the tank are not fit to the end.

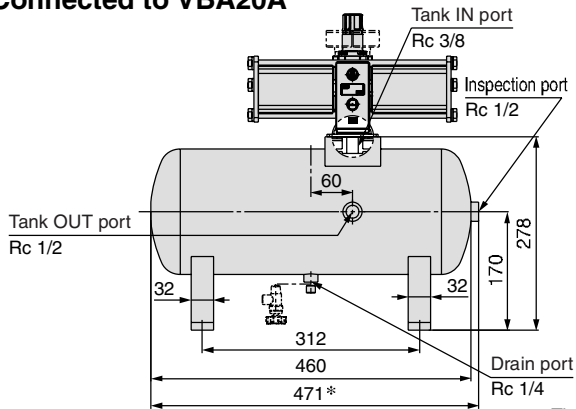
VBAT10A Material: Carbon steel

Connected to VBA10A, 1111

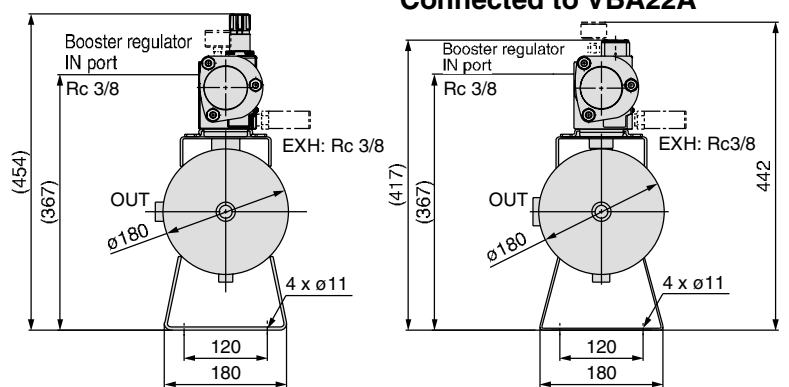


* The length may be longer than the specification if the plugs mounted on the tank are not fit to the end.

Connected to VBA20A



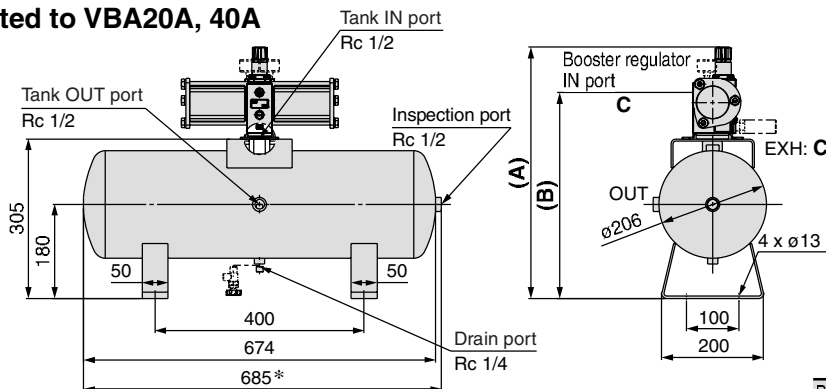
Connected to VBA22A



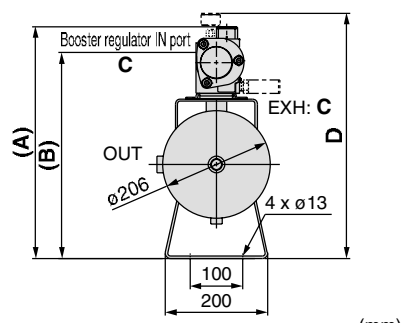
* The length may be longer than the specification if the plugs mounted on the tank are not fit to the end.

VBAT20A Material: Carbon steel

Connected to VBA20A, 40A



Connected to VBA22A, 42A



* The length may be longer than the specification if the plugs mounted on the tank are not fit to the end.

Booster regulator model	A	B	C	D <small>(Note)</small>
VBA20A	481	394	Rc 3/8	—
VBA40A	520	429.8	Rc 1/2	—
VBA22A	444	394	Rc 3/8	469
VBA42A	477	429.8	Rc 1/2	493

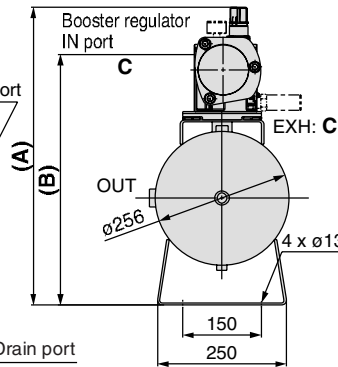
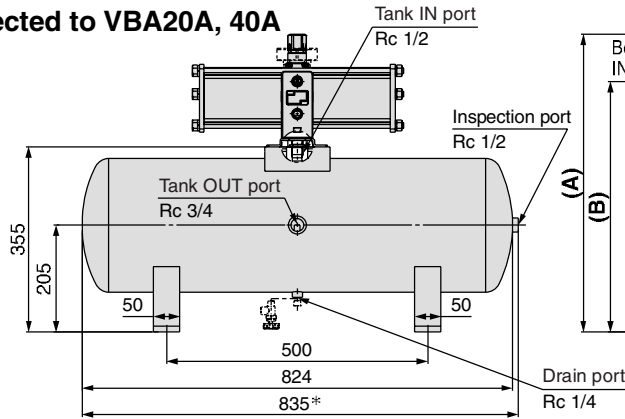
(mm)
Note) Option: when G (pressure gauge) is selected

Series VBAT

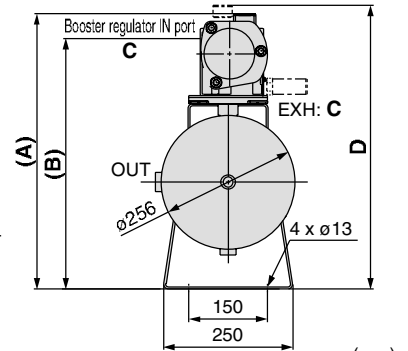
Dimensions

VBAT38A Material: Carbon steel

Connected to VBA20A, 40A



Connected to VBA22A, 42A



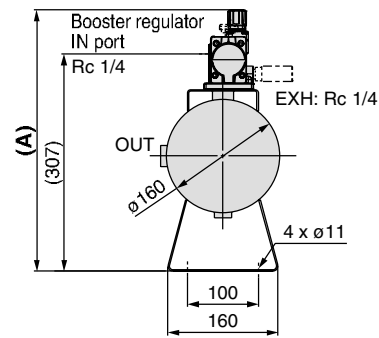
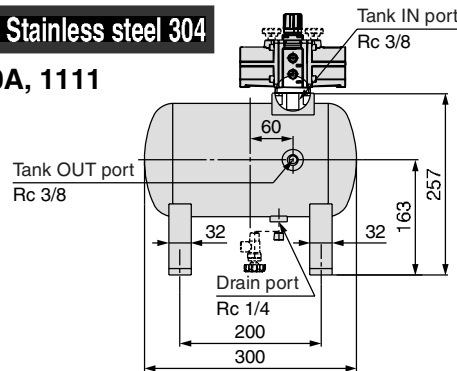
Booster regulator model	A	B	C	D (Note)
VBA20A	531	444	Rc 3/8	—
VBA40A	570	479.8	Rc 1/2	—
VBA22A	494	444	Rc 3/8	519
VBA42A	527	479.8	Rc 1/2	543

* The length may be longer than the specification if the plugs mounted on the tank are not fit to the end.

Note) Option: when G (pressure gauge) is selected

VBAT05S Material: Stainless steel 304

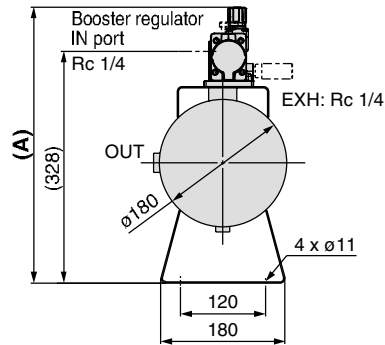
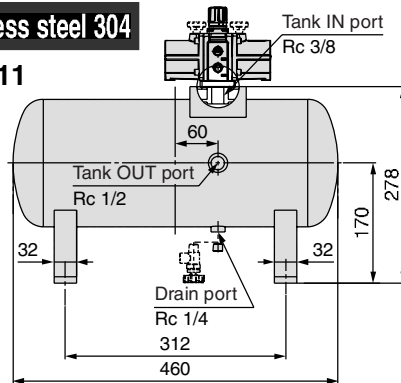
Connected to VBA10A, 1111



Booster regulator model	A
VBA10A	370
VBA1111	365.5

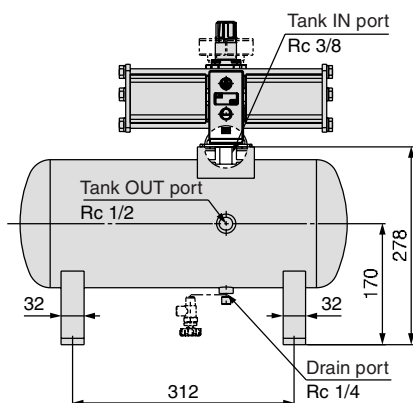
VBAT10S Material: Stainless steel 304

Connected to VBA10A, 1111

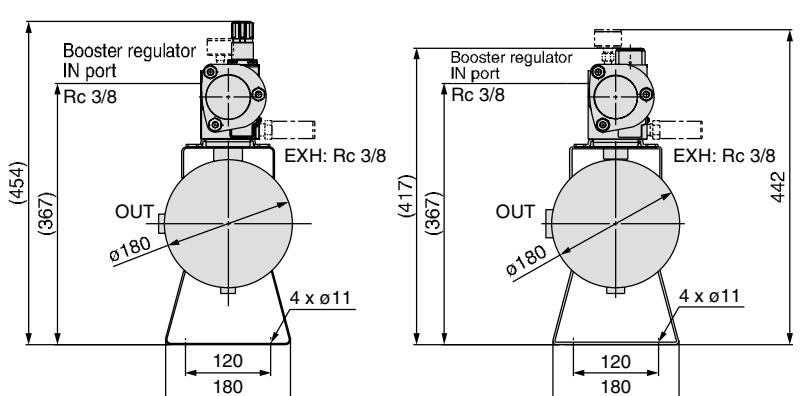


Booster regulator model	A
VBA10A	391
VBA1111	386.5

Connected to VBA20A



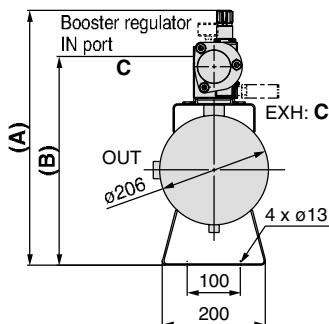
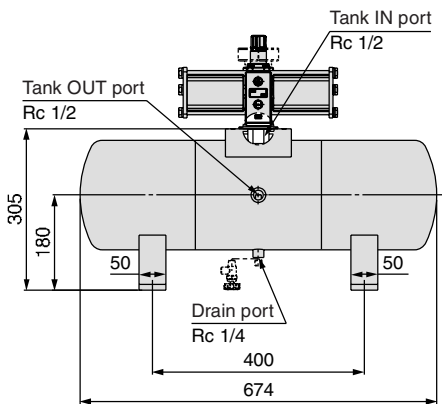
Connected to VBA22A



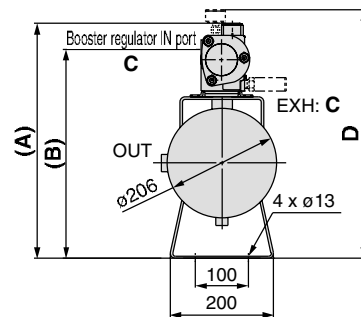
Dimensions

VBAT20S Material: Stainless steel 304

Connected to VBA20A, 40A



Connected to VBA22A, 42A, 43A

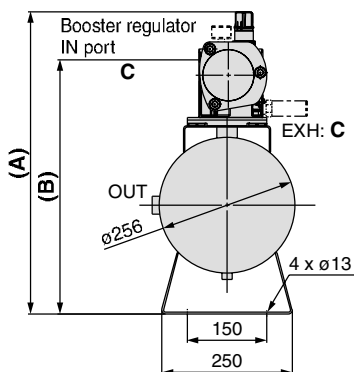
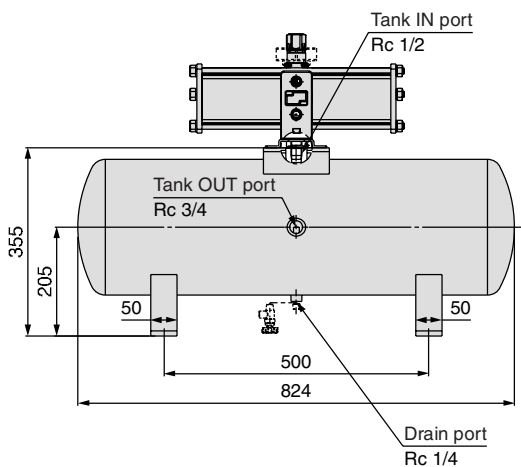


Booster regulator model	A	B	C	D (Note)
VBA20A	481	394	Rc 3/8	—
VBA40A	520	429.8	Rc 1/2	—
VBA22A	444	394	Rc 3/8	469
VBA42A	477	429.8	Rc 1/2	493
VBA43A	526	—	—	—

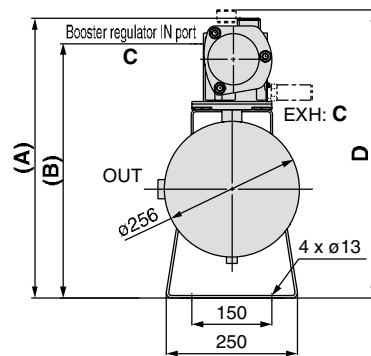
Note) Option: when G (pressure gauge) is selected

VBAT38S Material: Stainless steel 304

Connected to VBA20A, VBA40A



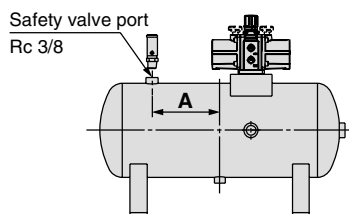
Connected to VBA22A, 42A, 43A



Booster regulator model	A	B	C	D (Note)
VBA20A	531	444	Rc 3/8	—
VBA40A	570	479.8	Rc 1/2	—
VBA22A	494	444	Rc 3/8	519
VBA42A	527	479.8	Rc 1/2	543
VBA43A	576	—	—	—

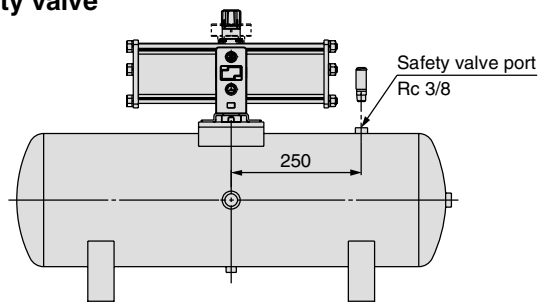
Note) Option: when G (pressure gauge) is selected

VBAT⁰⁵₁₀A1-R S With safety valve



Tank model	A (mm)
VBAT05	60
VBAT10	130

VBAT²⁰₃₈A1-R S With safety valve





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.*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.

Record of changes

Edition B	* Addition of air-operated type booster regulators, VBA22A/42A series * Addition of booster regulators with max. operating pressure of 1.6 MPa, VBA43A series * Number of pages increased from 24 to 28	MY
Edition C	* Addition of booster regulators, VBA10A series * Deletion of booster regulators, VBA1110 series Change of accessories/part no. of air tank, VBAT series Change of dimensions of air tank, VBAT series * Number of pages decreased from 28 to 20	NY

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