

CHECK VALVE

CVC3/CVC3R

USER'S MANUAL



 MIYAWAKI INC.

SAFETY GUIDE

The model CVC3/CVC3R is an all stainless steel check valve to prevent backflow in a line. The CVC3 can be used for steam, water or hot water, and the CVC3R can be used for water or hot water.

In order to get maximum benefit from this product, be sure to read this manual before installing it.

The following warnings and cautions are shown at appropriate places in this manual.



Failure to observe this type of precaution may lead to serious injury or death.



Failure to follow this type of precaution can lead to injury or damage to equipment and property.

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1 SPECIFICATIONS AND MARKINGS



WARNING

Be sure not to use this product at higher pressures than the specified maximum allowable pressure (PMA) or at temperatures higher than the specified maximum allowable temperature (TMA).

The following items are displayed on the name label or the side of the product.

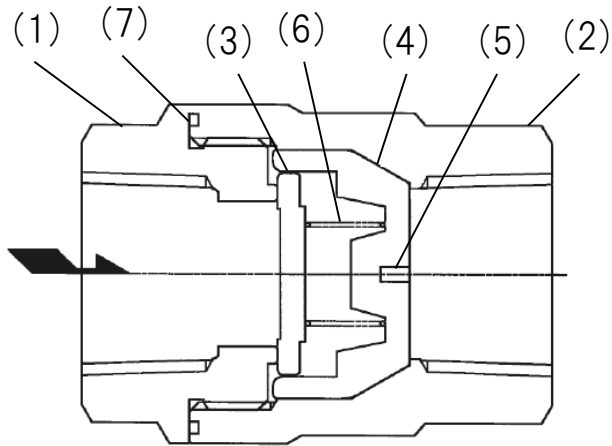
Check each item to avoid misuse of the product.

- 1) Maximum Operating pressure (PMO): 2.1MPa (305psig)
- 2) Maximum operating temperature (TMO): CVC3: 220°C (428°F)
CVC3R: 80°C (176°F)
- 3) Size: CVC3: 15 mm (1/2"), 20 mm (3/4"), 25 mm (1"), 32 mm (1-1/4"),
40 mm (1-1/2"), or 50 mm (2")
CVC3R: 15 mm (1/2") only
- 4) Year of production: The two leftmost digits in the seven-digits 'S No.' on the cover are the last two digits of the year of production.
- 5) Flow direction: Shown by an arrow
- 6) Body material: SCS13A
- 7) Model symbol: Showing the product model name

Some pictures and illustrations in this manual are that of the representative model of the CVC3 models. For more details regarding dimensions and other specifications, please refer to the catalog.

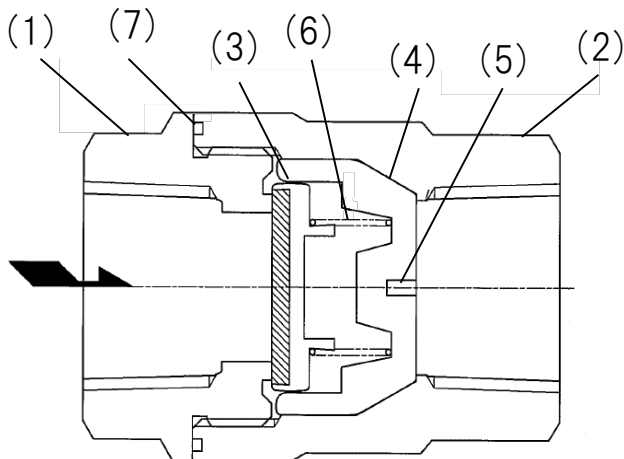
2 CONSTRUCTION DETAILS

15A: CVC3



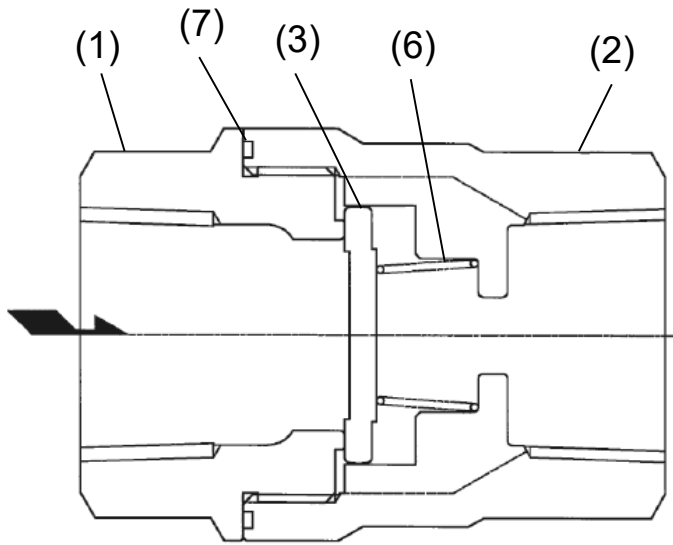
1. Body
2. Cover
3. Disc
4. Retainer A
5. Retainer B
6. Spring
7. Cover Gasket

15A: CVC3R



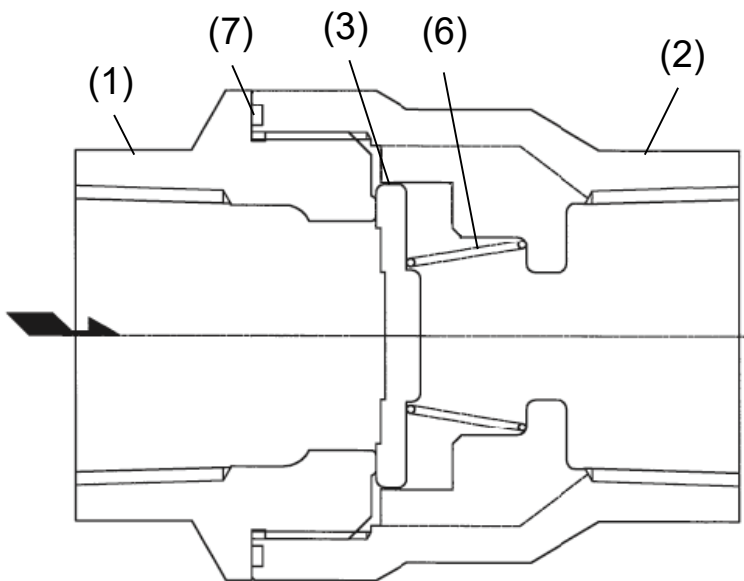
1. Body
2. Cover
3. Disc
4. Retainer A
5. Retainer B
6. Spring
7. Cover Gasket

20A



- 1. Body
- 2. Cover
- 3. Disc
- 6. Spring
- 7. Cover Gasket

25A-50A



- 1. Body
- 2. Cover
- 3. Disc
- 6. Spring
- 7. Cover Gasket

3 INSTALLATION



WARNING

Pay very careful attention when working in hazardous environments. There is a risk of explosion and the possibility of dangerous gases leaking. Always check whether the pipeline contains flammable, high pressure or high temperature materials before starting to work.

- **Make sure that isolation valves are installed on both the upstream and downstream lines.**



CAUTION

- **Before installing the product, open both isolation valves and the bypass valve, if one exists, to blow out any debris or dirt inside the pipeline.**
 - **After blowing out the line, before starting to work, close the isolation valves and allow time for the temperature to drop to a safe working temperature.**
 - **Please do not use a sealing agent intended for normal temperatures on the threaded part of the pipe when you install the check valve in a pipeline. The sealing agent can stick to the valve seat and this may cause a backflow. Please use only high temperature sealing tape, such as fluoroplastics (e.g. Teflon tape).**
 - **When installing the product, be sure to leave clearance for maintaining it.**
- 1) Remove the dustproof seals covering both connections.
 - 2) Check the flow direction indicated on the side of the body.
 - 3) The CVC3/CVC3R can be used for both horizontal and vertical lines.
 - 4) Open the isolation valve on the upstream line and make sure the product works normally.

4 MAINTENANCE



WARNING

- Before removing the check valve from the pipe or disassembling it, be sure to close the isolation valves. Then, release the residual pressure from the check valve body (make sure that the pressure in the main body is equal to the atmospheric pressure). After it has fully cooled down (after the temperature of the main body has reached ambient temperature), confirm for safe conditions and then begin work.
- Even when the isolation valves are closed, there may be residual internal pressure due to leaks from the isolation valves. Therefore, be very careful.



CAUTION

- When replacing parts, make sure the replacement parts are supplied by Miyawaki.

The performance of check valves deteriorates gradually over time due to wear, corrosion, or dirt. To keep steam control systems and equipment working well, periodic maintenance of check valves is essential.

4.1 Repairs

When a check valve fails, it is necessary to clean the internal parts and to replace damaged parts. Take the failed check valve apart following the steps below.

4.1.1 Disassembling the check valve

1) Secure the body (1) in a vise and loosen the cover (2).

2) In the case of the size 15A,

*remove the disc (3), spring (6), retainer A (4), retainer B (5), in this order.

In the case of other sizes 20A, 25A, 32A, 40A and 50A,

*remove the disc (3) and spring (6), in that order.

3) Then remove the cover gasket (7) from the cover (2).

After repairing the trap, re-assemble the parts in reverse order as follows.

4.1.2 Reassembling the check valve

1) In the case of the size 15A,

*put retainer B (5) into the groove in retainer A (4), and put the spring (6) into the groove in retainer A (4). Then install retainer A (4) into the bottom of the cover (2).

In the case of other sizes 20A, 25A, 32A, 40A and 50A,

*fit the spring (6) into the groove in the cover (2) with a large diameter end up.

2) In the case of the CVC3

*place the machined surface of the disc (3) facing up, on the spring (6).

In the case of the CVC3R

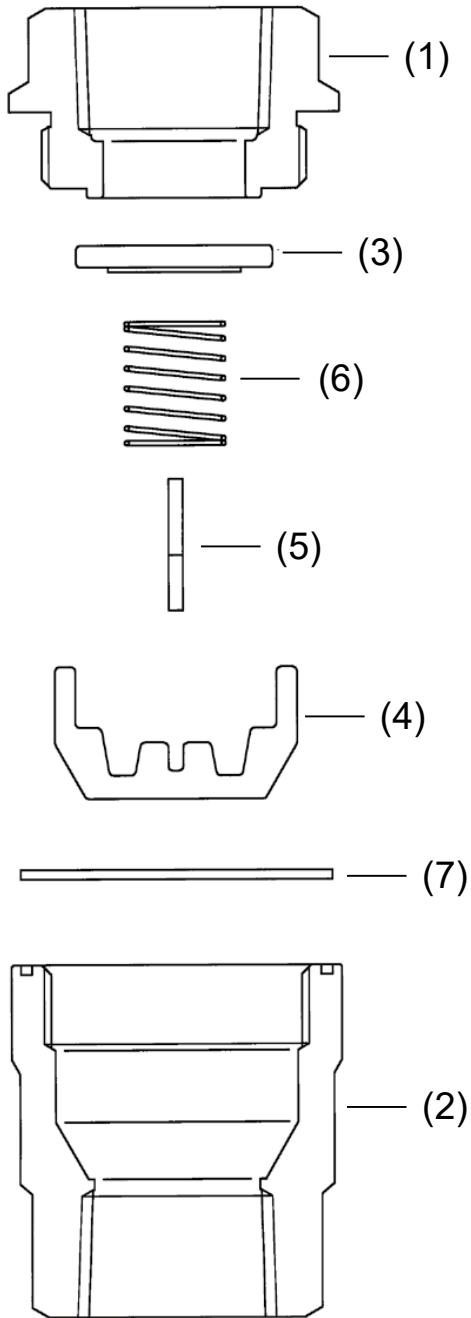
*place the rubber surface of the disc (3) facing up, on the spring (6).

3) Put the cover gasket (7) into the gasket groove in the cover (2), and then tighten the body (1) to the cover (2).

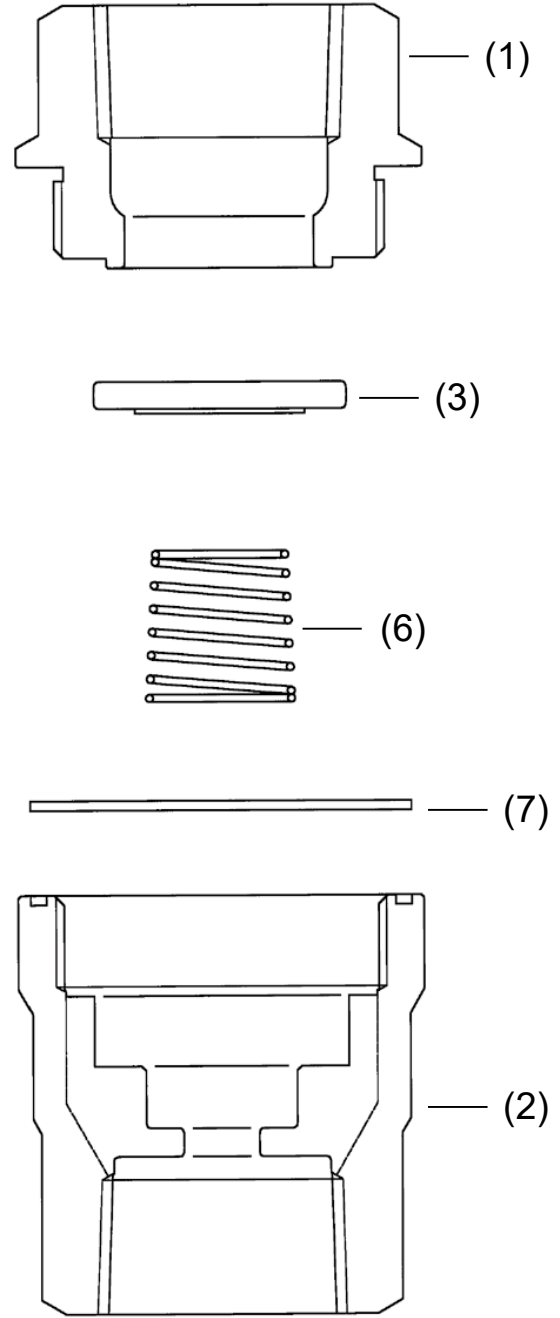
The torque for each part is shown in the following table.

Parts	Models	Size(A)	Tools	Across the flats	Torque
Body (1)	CVC3	15	Torque wrench	27mm (1,06")	150N·m
		20		33mm (1,3")	200N·m
		25		41mm (1,61")	250N·m
		32		50mm (1,97")	320N·m
		40		58mm (2,28")	360N·m
		50		72mm (2,83")	400N·m
Body (1)	CVC3R	15	Torque wrench	27mm (1,06")	150N·m

15A



20A~50A



- 1. Body
- 2. Cover
- 3. Disc
- 4. Retainer A

- 5. Retainer B
- 6. Spring
- 7. Cover Gasket

5 TROUBLESHOOTING

Problem	Possible cause	Solution
The fluid (steam, water or hot water) flows backward.	Dirt is stuck around the disc (3) or the seat in the body (1).	Clean the disc or seat.
	Damage, wear or corrosion of the disc	Replace the disc with a new one.
	Damage, wear or corrosion of the valve seat in the body	Replace the valve seat with a new one.
	The spring (6) is damaged.	Replace the spring.
The fluid (steam, water or hot water) leaks from the connection between the body and the cover.	The connection between the body (1) and the cover (2) is loose.	Tighten the body or cover. *1
	The cover gasket (7) is damaged, worn or corroded.	Replace the cover gasket with a new one.
Insufficient condensate discharged, or no condensate discharged.	The disc (3) and the seat in the body (1) are stuck.	Disassemble and clean the disc and the seat.
	Dirt has built up around the seat.	Clean the seat.
	Wrong installation direction	Make sure the arrow on the product matches the flow direction of the fluid.

*1: Refer to the torque table in Section 4, "Maintenance" to retighten the parts to the correct torque.

6 WARRANTY

6.1 Warranty period

The warranty period is 18 months after shipment or 12 months after installation, whichever occurs first.

6.2 Details of the warranty

If the product stops working correctly within the warranty period, we will repair or replace the product free of charge if the cause of the trouble is not one of the following items.

- 1) The precautions described in this manual were not observed.
- 2) User's errors or mistakes such as an inappropriate installation or incorrect handling, or an excessively large impact caused by dropping
- 3) Problems caused by devices or equipment other than ours, or a disallowed use environment
- 4) When a repair or modification has been performed by anyone other than us or people who are authorized to make such repairs
- 5) Intrusion of salt or other substances that promote significant rust or corrosion or problems from fluids that contain the same substances
- 6) Consumable parts such as Packing, Gasket, O-ring, Diaphragm, etc
- 7) Attachment or accumulation of foreign matter in the pipe, such as dust and scale
- 8) Problems from fires, natural disasters, or other force majeure which is not our responsibility

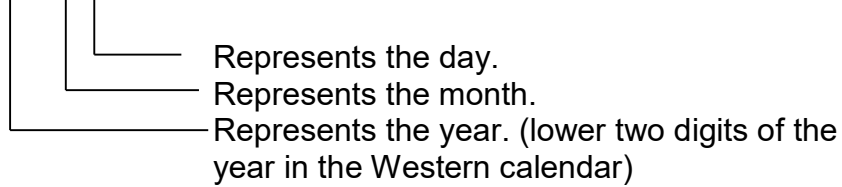
6.3 Warranty limitation

The remedy available under the warranty shall not exceed the sales price of the products delivered, for any cause whatsoever.

7 SERIAL NUMBER (S. No.) DESIGNATION

The S. No. is indicated on the side of the cover.

S.No. □□ □□ ○○○



Month designation system

Symbol	Month	Symbol	Month	Symbol	Month	Symbol	Month
1	1	4	4	7	7	X	10
2	2	5	5	8	8	Y	11
3	3	6	6	9	9	Z	12

Day designation system

Symbol	Day	Symbol	Day	Symbol	Day	Symbol	Day
1	1	9	9	H	17	Q	25
2	2	A	10	J	18	R	26
3	3	B	11	K	19	S	27
4	4	C	12	L	20	T	28
5	5	D	13	M	21	U	29
6	6	E	14	N	22	V	30
7	7	F	15	O	23	W	31
8	8	G	16	P	24		

Example of serial number designation

0991○○○ → Sep. 1, 2009 19XM○○○ → Oct. 21, 2019

8 GUIDANCE FOR READING SPECIAL PRODUCT NAME

○○○-○○-□

Special symbol:
Symbol apply only to special product
(Please refer to table 1 for details)
 English letter after “-“

Model symbol:
Product model number

Table 1 Symbol description

Suffix	Special contents
A	Trap for high-pressure gas installed property
C	Blow valve attached
K	Change of gasket
L	Special face to face dimension
M	Change of parts material
P, T	Change of operating pressure, temperature, condensate capacity, etc
R	Change of screen mesh
V	Change of air vent
X	Other than mentioned above or complex of special contents above

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- For any questions about the product that you purchased or about the details in this user's manual, please contact the following.
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 - Some special specifications of the product you have, may found to be different from the ones in the user's manual. If you have any question, please contact MIYAWAKI, our local authorized agent, or the place where you purchased.
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CVC3/CVC3R