

CHB/CHG

(Compact rotary valve)

Air operated ball valve 2, 3 port valve

For water, hot water, air and oil (500mm²/s or less)

Overview

The actuator has a double piston type air operated structure provided with rack and pinion. The valve is a ball valve type configured of materials and a structure resistant to water and hot water scales.

This compact and accurate high-power 2, 3 port valve (Rc3/8 to Rc2) can handle various fluids including water, hot water, air and oil.

Features

Highly accurate new structure

A highly reliable air operated double piston rack and pinion method has been incorporated to ensure precise operations.

Pilot operated valve installable

A solenoid valve for switching the actuator section helps reduce design and installation steps and save space.

Usable in flammable environments

With its completely air operated structure, this valve is safely used even in a flammable environment or outdoors. Note that this does not apply to models with solenoid valve for switching.

Resistant against foreign matter and water scales

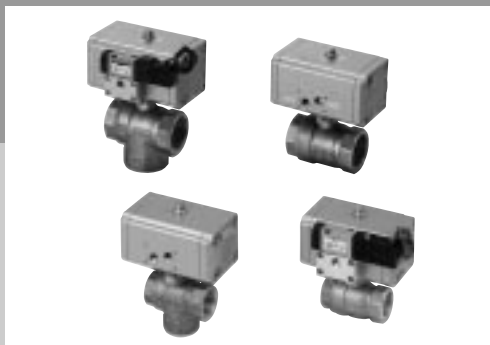
This valve operates both forward and in reverse, enabling foreign matter to be easily removed even if it enters the valve. The valve's structure and material make it resistant to cold and hot water deposits.

Compact, light and large flow rate

Large flow rates are controlled even with this compact, light design.

Wide variation

The 7 available sizes are from 10A to 50A. The 2 materials available to handle fluids are brass (CAC407) and stainless steel (SCS13).



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● 3 port valve	Double acting type	CHG-V* 542
	Single acting type	CHG-X* 542
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⚠ Read the precautions in the introduction and on page 520 carefully before starting use.

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/AD

APK/

ADK

For

dry air

Explosion

proof

HVB/

HVL

SAB/

SVB

NP/NAP/

NVP

CHB/G

MXB/G

Other G.P.

systems

PD/FAD/

PJ

CVE/

CVSE

CPE/

CPD

Medical

analysis

Custom

order

Compact rotary valve
Air operated ball valve 2, 3 port valve

Series variation

Air operated ball valve 2,3 port valve (compact rotary valve)

Actuation	Series	Bore shape	Body material		Port size (Upper: Nominal, Lower: Port size)								Page	
			Bronze (CAC406)	Stainless steel (SCS13)	10A	15A	20A	25A	32A	40A	50A			
					3/8	1/2	3/4	1	1 1/4	1 1/2	2			
Double acting type	Air operated type	2 port valve (CHB)	Standard bore	●	●	● *	●	●	●	●	●	●	●	522
		2 port valve (CHBF)	Full bore	●	●		●	●	●	●	●		522	
		3 port valve (CHG)	Standard bore	●	●		●	●	●	●	●	●	530	
	Solenoid valve mounted type	2 port valve (CHB-V)	Standard bore	●	●	● *	●	●	●	●	●	●	●	536
		2 port valve (CHBF-V)	Full bore	●	●		●	●	●	●	●		536	
		3 port valve (CHG-V)	Standard bore	●	●		●	●	●	●	●	●	542	
Single acting type (Spring return)	Air operated type	2 port valve (CHB-R)	Standard bore	●	●	● *	●	●	●	●	●	●	522	
		2 port valve (CHBF-R)	Full bore	●	●		●	●	●	●	●		522	
		3 port valve (CHG-R)	Standard bore	●	●		●	●	●	●	●	●	530	
	Solenoid valve mounted type	2 port valve (CHB-X)	Standard bore	●	●	● *	●	●	●	●	●	●	536	
		2 port valve (CHBF-X)	Full bore	●	●		●	●	●	●	●		536	
		3 port valve (CHG-X)	Standard bore	●	●		●	●	●	●	●	●	542	

Note: For details on differences by bore shape, refer to the orifice diameter and dimensions on each page.

* The model belongs to the standard bore, but this is a full bore structure.

HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
For dry air
Explosion proof
HVB/HVL
SAB/SVB
NP/NAP/NVP
CHB/G
MXB/G
Other G.P. systems
PD/FAD/PJ
CVE/CVSE
CPE/CPD
Medical analysis
Custom order

Compact rotary valve
Air operated ball valve 2, 3 port valve



Safety precautions

Read this section carefully before starting use

Air operated ball valve 2, 3 port valve (compact rotary valve)

Design & Selection

WARNING

1 Working environment

- (1) If there are high levels of dust in the area, provide protection by installing a silencer or an elbow joint facing downward onto the exhaust port so that dust does not enter.
- (2) The solenoid valve mounted type cannot be used in a flammable gas environment. To use in a flammable gas environment, install the separate explosion proof solenoid valve on the pilot air circuit of the CHB, CHBF, CHG, CHB-R, CHBF-R or CHG-R series.
- (3) The solenoid valve mounted type must not be used outdoors. Take appropriate measures to guard the valve if it may be subject to water drip or oil, etc.

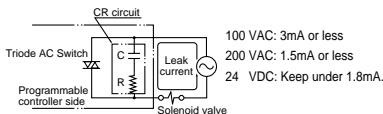
CAUTION

1 Fluid viscosity

Generally, the valve can be used with a fluid viscosity of up to 500mm²/s. However, the properties may differ according to the fluid type, so consult with CKD.

2 Leakage current from other fluid control components

When operating the solenoid valve with a programmable controller etc., confirm that the leak current output from the programmable controller is within the following specifications. Failure to observe this could lead to malfunctions.



3 Caution of external pilot air

- (1) Drain countermeasures - The compressed air contains high levels of drain (water, oxidized oil, tar, foreign matter) which can cause the reliability of the pneumatic components to drop remarkably. Improve the quality of the air (create clean air) by removing moisture with an after cooler or dryer, removing the foreign matter with a filter, and removing the tar with a tar removal filter, etc.
- (2) Pre-lubricated. This series is used with pre-lubricated specifications, so no lubricator is required. Once lubrication is started, however, lubricate continuously to avoid using up lubricator. When lubricating, use the turbine Class 1/ISO VG32 (#90) or the equivalent.
- (3) The filter - Install a filter with a 5 μm or less filter element.

4 Limit switch

Refer to the following table for the limit switch ratings.

Rated voltage (V)	No inductive load (A)			
	Resistance load		Light load	
	Always closed circuit	Always open circuit	Always closed circuit	Always open circuit
250 AC	5		1.5	
30 DC	5		-	

Note 1: The above values indicate normal current.

Note 2: Light load refers to a load with 10-fold rush current.

Note 3: The maximum rush current is 10 A.

Note 4: Consult with CKD about using extremely small loads.

Note 5: OMRON D4E-1G20N limit switch is used. Refer to the OMRON catalog for more details.

Installation, piping & wiring

CAUTION

1 Installation

Always hold the body when handling or installing the product. Do not pull on the lead wires or drop the product.

2 Piping

- (1) Fix the product when tightening or reinstalling the piping. When piping to the body side, fix the body, and when piping to the cap side, fix the cap.
- (2) Fix and support the pipes so that the weight and vibration of the pipes are not directly applied on the valves.
- (3) Observe the pressurization direction (C-port pressurization limit) for the 3 port valve.
- (4) Refer to following table for the tightening torques for the pilot air piping.

Piping nominal diameter	Recommended piping tightening torque (N·m)
Rc1/8	7 to 9
Rc1/4	12 to 14

- (5) Do not pipe using the solenoid valve section. Failure to observe this could cause damage. (For solenoid valve mounted type)

3 Wiring (For solenoid valve mounted type)

- (1) The CKD 4-way valve (4KB119) is used for the pilot operated solenoid valve. Refer to the general catalog of "Pneumatic Valves" for details on the wiring methods.

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/AD

APK/
ADK

For
dry air
Explosion
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HVB/
HVL

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NP/NAP/
NVP

CHB/G

MXB/G

Other G.P.
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PD/FAD/
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order

Compact rotary valve
Air operated ball valve 2, 3 port valve

When Using

CAUTION

1 Water hammer prevention

When preventing water hammer, restrict the exhaust side with metering valve with silencer and flow control valve, etc.

2 Cycle rate

Failure to observe the cycle rate could shorten service life.

3 Manual operation method (Only for double acting type)

Exhaust residual pressure in actuator by turning OFF pilot air. Place an adjustable spanner on the stem on the top of actuator and turn it slowly.

* Single acting type (CHB-R, CHBF-R, CHG-R, CHB-X, CHBF-X, CHG-X series) can not be manually operated because spring is incorporated.

4 Do not touch the stem on the top of the actuator when activated.

The stem will rotate when activated.

Maintenance

WARNING

1 Handling of single acting type actuator section

Do not disassemble the single acting type actuator section. Incorporated reinforced spring will pop out when disassembled.



Air operated ball valve 2 port valve
(compact rotary valve)

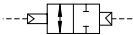
CHB/CHB-R* Series CHBF/CHBF-R* Series

● Port size: Rc3/8 to Rc2

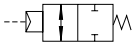


JIS symbol

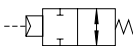
● CHB/CHBF
(Double acting)



● CHB-R1
CHBF-R1
(Single acting - NC)



● CHB-R2
CHBF-R2
(Single acting - NO)



Common specifications

Descriptions	Double acting type	Single acting type	
	CHB (standard bore) CHBF (full bore)	CHB-R* (standard bore) CHBF-R* (full bore)	
Actuation	Air operated type: double acting	Air operated type: single acting	
Working fluid	Water, hot water, air, oil (500mm ² /s or less)		
Working pressure range MPa	0 to 1.0		
Withstanding pressure (water) MPa	2.0		
Fluid temperature °C	0 to 80 (no freezing)		
Ambient temperature °C	-10 to 60 (no freezing)		
Working environment	Indoors/outdoors		
Valve seat leakage cm ³ /min	0 (under 1MPa water pressure)		
Installation attitude	Free		
Cycle rate Cycle/min.	1 or less		
Rotary actuator	Pilot fluid	Compressed air	
	Lubrication	Not required (if lubrication is required, use turbine oil Class 1, ISO VG32.)	
	Withstanding pressure (water) MPa	1.5	
	Working pressure range MPa	0.35 to 0.7	0.4 to 0.7
	Fluid temperature °C	5 to 60	
	Port size	Rc1/8	CHB body port size Rc3/8 to Rc1 1/4: Rc1/8
			CHB body port size Rc1 1/2 to Rc2: Rc1/4 CHBF body port size Rc1/2 to Rc1: Rc1/8 CHBF body port size Rc1 1/4 to Rc1 1/2: Rc1/4

Individual specifications

Descriptions	Port size	Orifice (mm)	Cv flow factor	Mass (kg)	
				Double acting	Single acting
Standard bore	CHB-(R*)-10	Rc3/8	10	1.0	1.1
	CHB-(R*)-15	Rc1/2	10	1.0	1.1
	CHB-(R*)-20	Rc3/4	15	1.6	1.3
	CHB-(R*)-25	Rc 1	20	2.9	2.2
	CHB-(R*)-32	Rc1 1/4	25	5.0	2.7 (2.8)
	CHB-(R*)-40	Rc1 1/2	32	9.8	2.6 (2.7)
Full bore	CHB-(R*)-50	Rc 2	40	12.5	3.4 (3.5)
	CHBF-(R*)-15	Rc1/2	15	2.3	1.2
	CHBF-(R*)-20	Rc3/4	20	5.1	1.3
	CHBF-(R*)-25	Rc 1	25	6.6	2.2
	CHBF-(R*)-32	Rc1 1/4	32	11.4	2.6
	CHBF-(R*)-40	Rc1 1/2	40	17.6	3.4

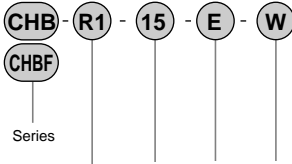
Note 1: CHB-(R*) 10 is a full bore.

Note 2: When a limit switch is used, weight increases +0.2 kg for 1 switch and +0.3 kg for 2.

Note 3: CHB-R*-40/50 and CHBF-R*-32/40 are not compatible with the limit switch.

() shows values for stainless steel body

How to order



A Actuator

B Port size
* 1

C Body material

D Limit switch
* 2
* 3

		Series	
Symbol	Descriptions	CHB (Standard bore)	CHBF (Full bore)
A Actuator			
Blank	Double acting type	●	●
R1	Single acting NC (normally closed) type	●	●
R2	Single acting NO (normally open) type	●	●
B Port size			
10	Rc 3 / 8	●	
15	Rc 1 / 2	●	●
20	Rc 3 / 4	●	●
25	Rc 1	●	●
32	Rc 1 1/4	●	●
40	Rc 1 1/2	●	●
50	Rc 2	●	
C Body material			
Blank	Bronze (CAC407)	●	●
E	Stainless steel (SCS13)	●	
N	Stainless steel (SCS13) Oil-prohibited specifications	●	
D Limit switch			
Blank	Without switch	●	●
H	Detection at valve open	●	●
V	Detection at valve closed	●	●
W	With 2 switches	●	●

*1: Port size 10 is a full bore, but the model is CHB.

2: CHB-R-40/50 and CHBF-R*-32/40 are not compatible with the limit switch.

*3: OMRON D4E-1G20N

<Example of model number>

CHB-R1-15-E-W

Series: CHB (standard bore)

- A** Actuator : Single acting NC (normally closed) type
- B** Port size : Rc1/2
- C** Body material : Stainless steel (SCS13)
- D** Limit switch : With 2 switches

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/AD

APK/
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For
dry air

Explosion
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HVB/
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CHB/G

MXB/G

Other G.P.
systems

PD/FAD/
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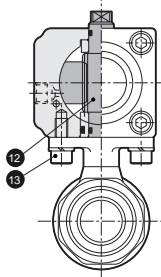
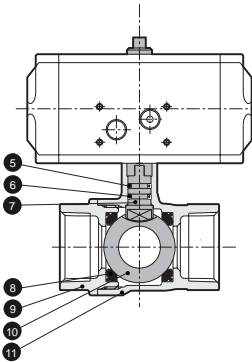
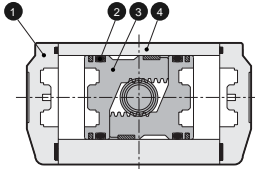
Medical
analysis

Custom
order

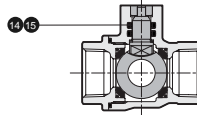
Compact rotary valve
Air operated ball valve 2 port valve

Internal structure and main parts material: CHB/CHBF Series

- CHB-10/15/20/25
CHBF-15/20



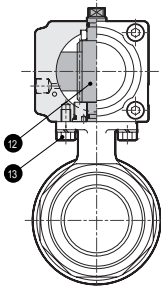
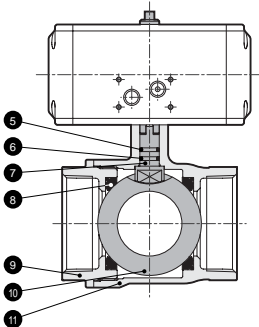
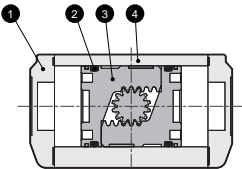
- Oil-prohibited specifications (ball valve)
CHB-10/15/20/25-N



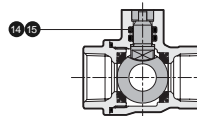
No.	Parts name	Material
1	Cylinder cap	ADC12 Aluminum alloy die-casting
2	O ring	NBR Nitrile rubber
3	Piston	ADC12 Aluminum alloy die-casting
4	Cylinder body	A6063 Aluminum
5	O ring	NBR (FKM) Nitrile rubber (fluoro rubber)
6	O ring	FKM Fluoro rubber
7	Shaft	SUS303 (SUS304) Stainless steel (stainless steel)
8	Valve seat	PTFE Tetrafluoroethylene resin
9	Valve cap	CAC407 (SCS13) Bronze casting (stainless steel casting)
10	Valve ball	C3771, Cr plated (SUS304) Brass, chrome plated (Stainless steel)
11	Valve body	CAC407 (SCS13) Bronze casting (stainless steel casting)
12	Stem	SUS303 Stainless steel
13	Hexagon socket head cap screw	SUSXM7 Stainless steel
14	O ring	FKM Fluoro rubber
15	Sealing ring	UHMW-PE Ultra high molecular weight polyethylene

() shows values for stainless steel body

- CHB-32/40/50
CHBF-25/32/40



- Oil-prohibited specifications (ball valve)
CHB-32/40/50-N

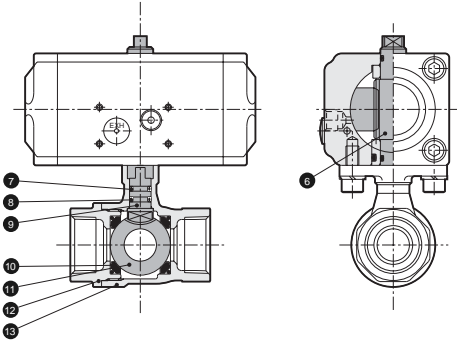
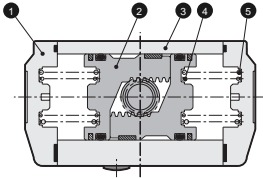


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7	Shaft	SUS303 (SUS304) Stainless steel (stainless steel)
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11	Valve body	CAC407 (SCS13) Bronze casting (stainless steel casting)
12	Stem	SUS303 Stainless steel
13	Hexagon head bolt	SUSXM7 Stainless steel
14	O ring	FKM Fluoro rubber
15	Sealing ring	UHMW-PE Ultra high molecular weight polyethylene

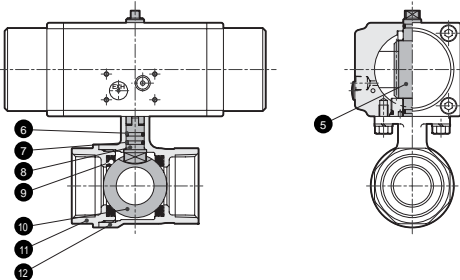
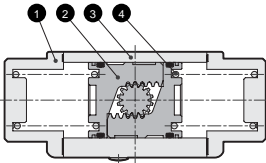
() shows values for stainless steel body

Internal structure and main parts material: CHB-R*/CHBF-R* Series

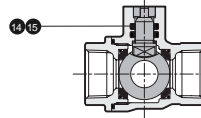
- CHB-R*-10/15/20
- CHBF-R*-15



- CHB-R*-25/32/40/50
- CHBF-R*-20/25/32/40



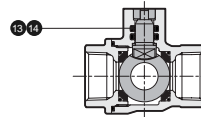
- Oil-prohibited specifications (ball valve)
- CHB-R*-10/15/20-[N]



No.	Parts name	Material	
1	Cylinder cap	ADC12	Aluminum alloy die-casting
2	Piston	ADC12	Aluminum alloy die-casting
3	Cylinder body	A6063	Aluminum
4	Spring	SWP	Piano wire
5	Spring	SWP	Piano wire
6	Stem	SUS303	Stainless steel
7	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
8	O ring	FKM	Fluoro rubber
9	Shaft	SUS303 (SUS304)	Stainless steel (stainless steel)
10	Valve seat	PTFE	Tetrafluoroethylene resin
11	Valve ball	C3771, Cr plated (SUS304)	Brass, chrome plated (Stainless steel)
12	Valve cap	CAC407 (SCS13)	Bronze casting (stainless steel casting)
13	Valve body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
14	O ring	FKM	Fluoro rubber
15	Sealing ring	UHMW-PE	Ultra high molecular weight polyethylene

() shows values for stainless steel body

- Oil-prohibited specifications (ball valve)
- CHB-R*-25/32/40/50-[N]



No.	Parts name	Material	
1	Cylinder cap	ADC12	Aluminum alloy die-casting
2	Piston	ADC12	Aluminum alloy die-casting
3	Cylinder body	A6063	Aluminum
4	Spring	SWP	Piano wire
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HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

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AG

AP/AD

APK/ADK

For dry air

Explosion proof

HVB/HVL

SAB/SVB

NP/NAP/NVP

CHB/G

MXB/G

Other G.P. systems

PD/FAD/PJ

CVB/CVSE

CPE/CPD

Medical analysis

Custom order

Compact rotary valve

Air operated ball valve 2 port valve

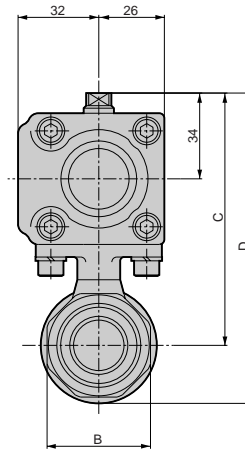
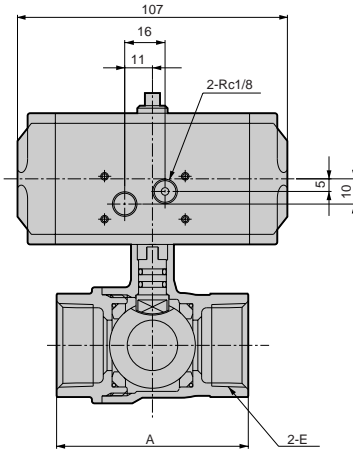
CHB/CHBF Series

Dimensions: CHB/CHBF Series



(Page 548)

- CHB-10/15/20/25
- CHBF-15/20

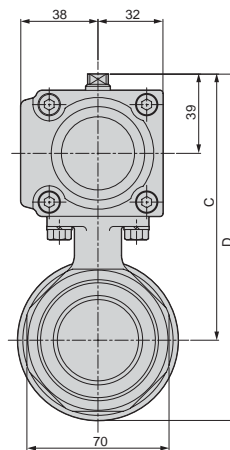
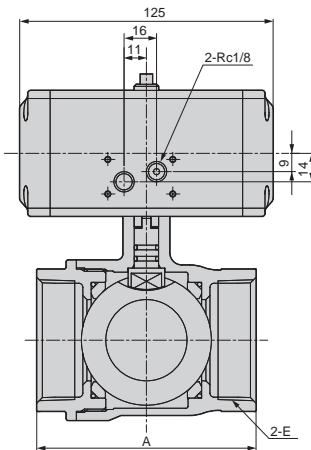


Model	A	B	C	D	E
CHB-10	50 (56)	24 (28)	91	106 (107)	Rc3/8
CHB-15	56	28	91	106 (107)	Rc1/2
CHB-20	65	34	97	116.5 (117.5)	Rc3/4
CHB-25	76	41	100	123 (124)	Rc 1

Model	A	B	C	D	E
CHBF-15	65	28	97	116.5	Rc1/2
CHBF-20	71	34	100	123	Rc3/4

() shows values for stainless steel body

- CHB-32/40/50
- CHBF-25/32/40



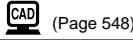
Model	A	B	C	D	E
CHB-32	84	50	116	143.5 (145.5)	Rc1/4
CHB-40	94	57	122	155.5 (157.5)	Rc1/2
CHB-50	108	70	131	170.5 (171.5)	Rc 2

Model	A	B	C	D	E
CHBF-25	84	41	116	143.5	Rc 1
CHBF-32	95	50	122	155.5	Rc1/4
CHBF-40	107	57	131	170.5	Rc1/2

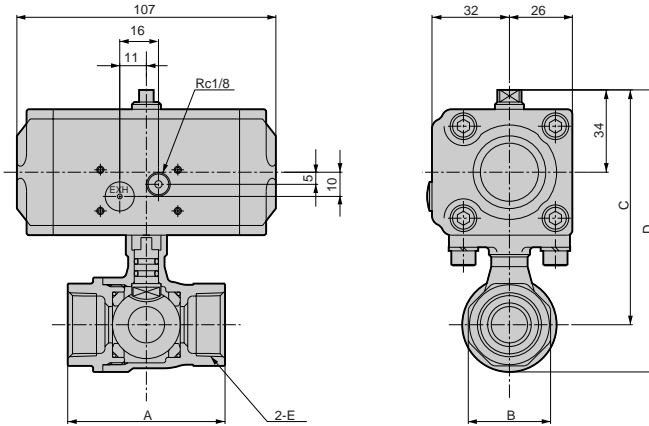
() shows values for stainless steel body

CHB-R*/CHBF-R* Series

Dimensions: CHB-R*/CHBF-R* Series



- CHB-R*-10/15/20
CHBF-R*-15

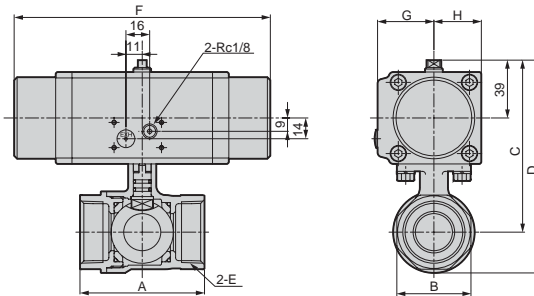
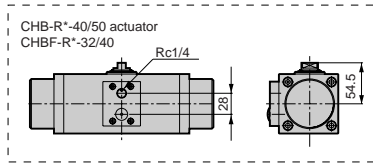


Model	A	B	C	D	E
CHB-R*-10	50 (56)	24 (28)	91	106 (107)	Rc3/8
CHB-R*-15	56	28	91	106 (107)	Rc1/2
CHB-R*-20	65	34	97	116.5 (117.5)	Rc3/4

Model	A	B	C	D	E
CHBF-R*-15	65	28	97	116.5	Rc1/2

() shows values for stainless steel body

- CHB-R*-25/32/40/50
CHBF-R*-20/25/32/40



Model	A	B	C	D	E	F	G	H
CHB-R*-25	76	41	110	133 (134)	Rc 1	173	38	32
CHB-R*-32	84	50	116	143.5 (145.5)	Rc1¼	173	38	32
CHB-R*-40	94	57	162	195.5 (197.5)	Rc1½	244	53	38
CHB-R*-50	108	70	171	210.5 (211.5)	Rc 2	244	53	38

Model	A	B	C	D	E	F	G	H
CHBF-R*-20	71	34	110	133	Rc3/4	173	38	32
CHBF-R*-25	84	41	116	143.5	Rc 1	173	38	32
CHBF-R*-32	95	50	162	195.5	Rc1¼	244	53	38
CHBF-R*-40	107	57	171	210.5	Rc1½	244	53	38

() shows values for stainless steel body

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/AD

APK/ADK

For dry air

Explosion proof

HVB/HVL

SAB/SVB

NPN/NP/NVP

CHB/G

MXB/G

Other G.P. systems

PD/FAD/PJ

CVE/CVSE

CPE/CPD

Medical analysis

Custom order

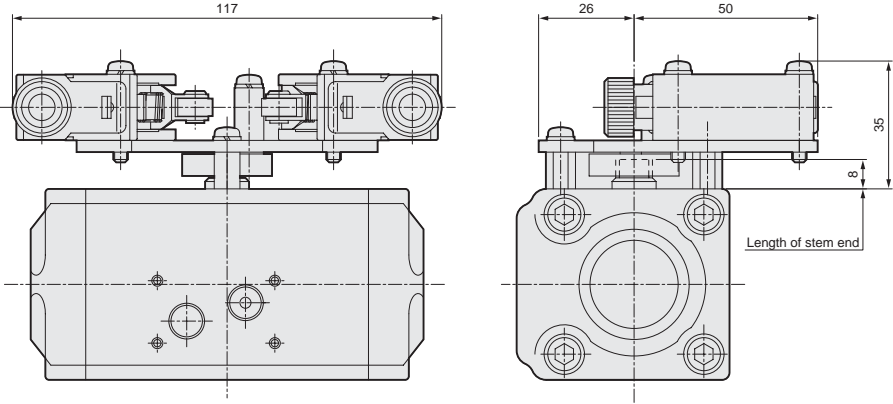
Compact rotary valve

Air operated ball valve 2 port valve

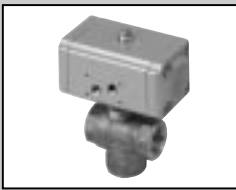
CHB/CHBF Series

Optional dimensions  (Page 548)

● With limit switch



* The product with limit switch height is +27mm.



Air operated ball valve
(compact rotary valve)

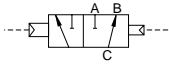
CHG/CHG-R* Series

● Port size: Rc1/2 to Rc2

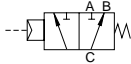


JIS symbol

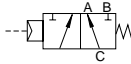
● CHG (Double acting)



● CHG-R1 (Single acting -
Constant B - Flow path C)



● CHG-R2 (Single acting -
Constant A - Flow path C)



Common specifications

Descriptions	CHG (Double acting)	CHG-R* (Single acting)	
Actuation	Air operated type: double acting	Air operated type: single acting	
Working fluid	Water, hot water, air, oil (500mm ² /s or less)		
Working pressure range MPa	0 to 1.0		
Withstanding pressure (water) MPa	2.0		
Fluid temperature °C	0 to 80 (no freezing)		
Ambient temperature °C	-10 to 60 (no freezing)		
Working environment	Indoors/outdoors		
Valve seat leakage cm ³ /min	0 (under 1MPa water pressure)		
Installation attitude	Free		
Cycle rate Cycle/min.	1 or less		
Pressurization direction	Limited to Port C pressurized		
Flow path shape	Multi-fluid type (90° rotation switching type)		
Rotary actuator	Pilot fluid	Compressed air	
	Lubrication	Not required (if lubrication is required, use turbine oil Class 1, ISO VG32.)	
	Withstanding pressure (water) MPa	1.5	
	Working pressure range MPa	0.35 to 0.7	0.4 to 0.7
	Fluid temperature °C	5 to 60	
Port size	Rc1/8	When main body port size is Rc1/2 to Rc1 1/4; Rc1/8 When main body port size is Rc1 1/2 to Rc2: Rc1/4	

Individual specifications

Descriptions Series	Port size	Orifice (mm)	Cv flow factor	Mass (kg)	
				Double acting	Single acting
CHG-(R*-) 15	Rc1/2	10	3	1.1	1.2
CHG-(R*-) 20	Rc3/4	14	6	1.3	1.4
CHG-(R*-) 25	Rc 1	19	11	1.5	2.4
CHG-(R*-) 32	Rc1 1/4	23	16	2.3	2.8
CHG-(R*-) 40	Rc1 1/2	30	28	2.8	5.0
CHG-(R*-) 50	Rc 2	38	47	3.7	5.9

Note 1: When a limit switch is used, weight increases +0.2 kg for 1 switch and +0.3 kg for 2.

Note 2: CHG-R*-40/50 are not compatible with the limit switch.

How to order

CHG - **R1** - **20** - **E** - **W**

Series

A Actuator

B Port size

C Body material

D Limit switch
* 1
* 2

Symbol	Descriptions
A	Actuator
Blank	Double acting type
R1	Single acting Constant B - Flow path C
R2	Single acting Constant A - Flow path C
B	Port size
15	Rc 1 / 2
20	Rc 3 / 4
25	Rc 1
32	Rc 1 1/4
40	Rc 1 1/2
50	Rc 2
C	Body material
Blank	Bronze (CAC407)
E	Stainless steel (SCS13)
N	Stainless steel (SCS13), oil-prohibited specifications
D	Limit switch
Blank	Without switch
H	A-C flow path detection
V	B-C flow path detection
W	With 2 switches

1: CHG-R-40/50 are not compatible with the limit switch.

*2: OMRON D4E-1G20N

<Example of model number>

CHG-R1-20-E-W

Series: CHG

- A** Actuator : Single acting Constant B - Flow path C
- B** Port size : Rc3/4
- C** Body materials : Stainless steel (SCS13)
- D** Limit switch : With 2 switches

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/AD

APK/ADK

For dry air

Explosion proof

HVB/HVL

SAB/SVB

NP/NAP/NVP

CHB/G

MXB/G

Other G.P. systems

PD/FAD/PJ

CVE/CVSE

CPE/CPD

Medical analysis

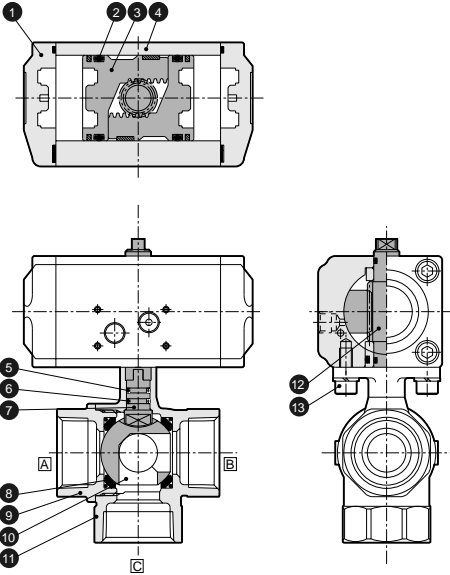
Custom order

Compact rotary valve

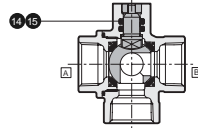
Air operated ball valve 3 port valve

Internal structure and main parts material: CHG Series

● CHG-15/20/25



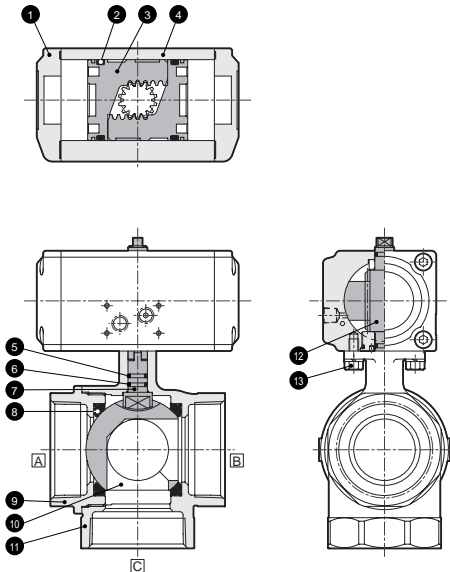
● Oil-prohibited specifications (ball valve)
CHG-15/20/25-[N]



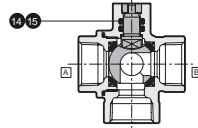
No.	Parts name	Material	
1	Cylinder cap	ADC12	Aluminum alloy die-casting
2	O ring	NBR	Nitrile rubber
3	Piston	ADC12	Aluminum alloy die-casting
4	Cylinder body	A6063	Aluminum
5	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
6	O ring	FKM	Fluoro rubber
7	Shaft	SUS303 (SUS304)	Stainless steel (stainless steel)
8	Valve seat	PTFE	Tetrafluoroethylene resin
9	Valve cap	CAC407 (SCS13)	Bronze casting (stainless steel casting)
10	Valve ball	C3771, Cr plated (SUS304)	Brass, chrome plated (Stainless steel)
11	Valve body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
12	Stem	SUS303	Stainless steel
13	Hexagon socket head cap screw	SUSXM7	Stainless steel
14	O ring	FKM	Fluoro rubber
15	Sealing ring	UHMW-PE	Ultra high molecular weight polyethylene

() shows values for stainless steel body

● CHG-32/40/50



● Oil-prohibited specifications (ball valve)
CHG-32/40/50-[N]

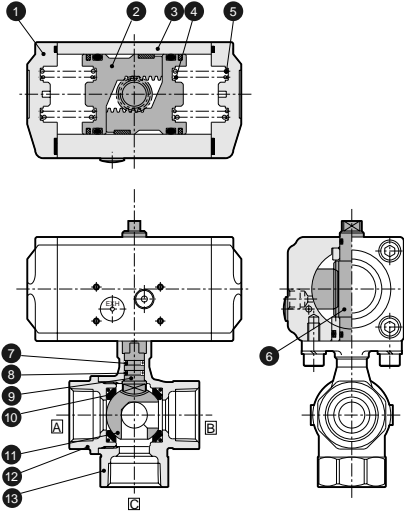


No.	Parts name	Material	
1	Cylinder cap	ADC12	Aluminum alloy die-casting
2	O ring	NBR	Nitrile rubber
3	Piston	ADC12	Aluminum alloy die-casting
4	Cylinder body	A6063	Aluminum
5	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
6	O ring	FKM	Fluoro rubber
7	Shaft	SUS303 (SUS304)	Stainless steel (stainless steel)
8	Valve seat	PTFE	Tetrafluoroethylene resin
9	Valve cap	CAC407 (SCS13)	Bronze casting (stainless steel casting)
10	Valve ball	C3771, Cr plated (SUS304)	Brass, chrome plated (Stainless steel)
11	Valve body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
12	Stem	SUS303	Stainless steel
13	Hexagon head bolt	SUSXM7	Stainless steel
14	O ring	FKM	Fluoro rubber
15	Sealing ring	UHMW-PE	Ultra high molecular weight polyethylene

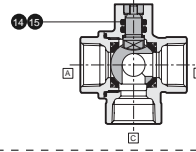
() shows values for stainless steel body

Internal structure and main parts material: CHG-R* Series

● CHG-R*-15/20



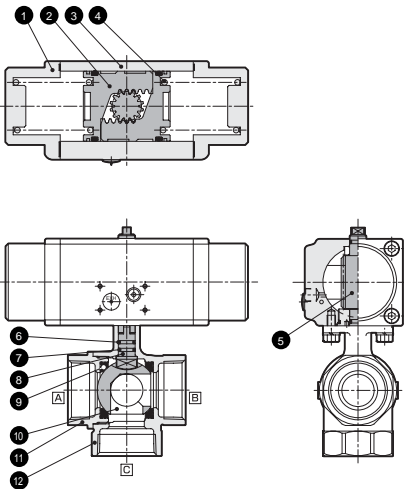
● Oil-prohibited specifications (ball valve)
CHG-R*-15/20-N



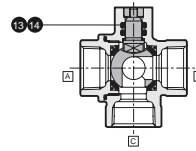
No.	Parts name	Material	
1	Cylinder cap	ADC12	Aluminum alloy die-casting
2	Piston	ADC12	Aluminum alloy die-casting
3	Cylinder body	A6063	Aluminum
4	Spring	SWP	Piano wire
5	Spring	SWP	Piano wire
6	Stem	SUS303	Stainless steel
7	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
8	O ring	FKM	Fluoro rubber
9	Shaft	SUS303 (SUS304)	Stainless steel (stainless steel)
10	Valve seat	PTFE	Tetrafluoroethylene resin
11	Valve ball	C3771, Cr plated (SUS304)	Brass, chrome plated (Stainless steel)
12	Valve cap	CAC407 (SCS13)	Bronze casting (stainless steel casting)
13	Valve body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
14	O ring	FKM	Fluoro rubber
15	Sealing ring	UHMW-PE	Ultra high molecular weight polyethylene

() shows values for stainless steel body

● CHG-R*-25/32/40/50



● Oil-prohibited specifications (ball valve)
CHG-R*-25/32/40/50-N



No.	Parts name	Material	
1	Cylinder cap	ADC12	Aluminum alloy die-casting
2	Piston	ADC12	Aluminum alloy die-casting
3	Cylinder body	A6063	Aluminum
4	Spring	SWP	Piano wire
5	Stem	SUS303	Stainless steel
6	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
7	O ring	FKM	Fluoro rubber
8	Shaft	SUS303 (SUS304)	Stainless steel (stainless steel)
9	Valve seat	PTFE	Tetrafluoroethylene resin
10	Valve ball	C3771, Cr plated (SUS304)	Brass, chrome plated (Stainless steel)
11	Valve cap	CAC407 (SCS13)	Bronze casting (stainless steel casting)
12	Valve body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
13	O ring	FKM	Fluoro rubber
14	Sealing ring	UHMW-PE	Ultra high molecular weight polyethylene

() shows values for stainless steel body

HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/
ADK
For
dry air
Explosion
proof
HVB/
HVL
SAB/
SVB
NP/NAP/
NVP

CHB/G

MXB/G

Other G.P.
systems

PD/FAD/
PJ

CVE/
CVSE

CPE/
CPD

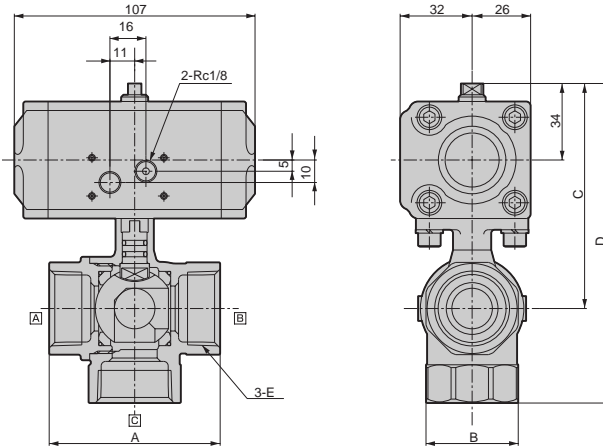
Medical
analysis

Custom
order

Compact rotary valve
Air operated ball valve 3 port valve

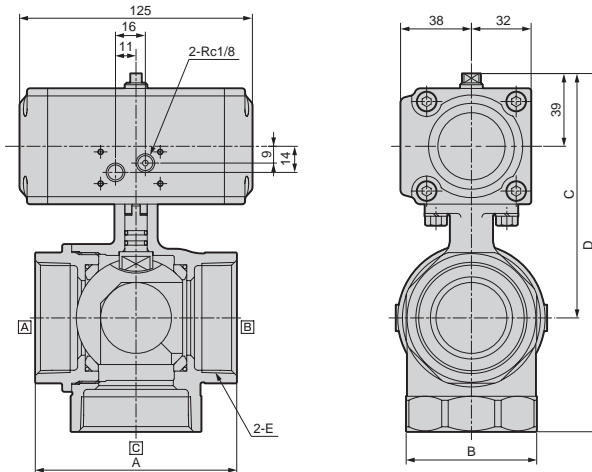


● CHG-15/20/25



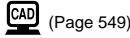
Model	A	B	C	D	E
CHG-15	56	28	91	121	Rc1/2
CHG-20	65	34	97	133	Rc3/4
CHG-25	76	41	100	142	Rc 1

● CHG-32/40/50

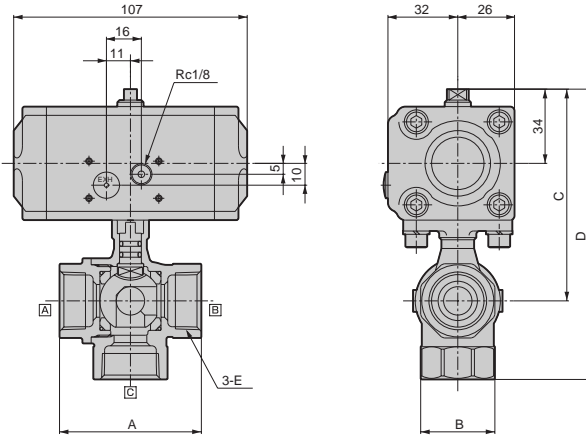


Model	A	B	C	D	E
CHG-32	84	50	116	163	Rc1/4
CHG-40	94	57	122	175	Rc1/2
CHG-50	108	70	131	192	Rc 2

Dimensions: CHG-R* Series

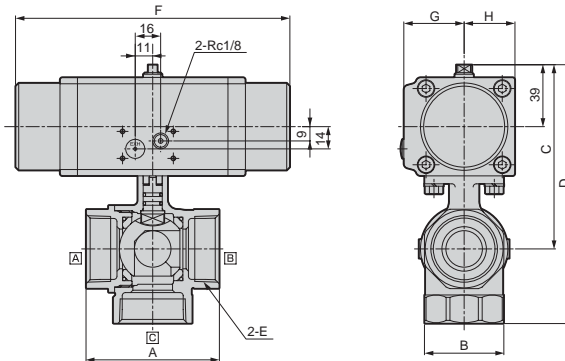
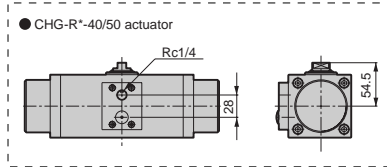


● CHG-R*-15/20



Model	A	B	C	D	E
CHG-R*-15	56	28	91	121	Rc1/2
CHG-R*-20	65	34	97	133	Rc3/4

● CHG-R*-25/32/40/50



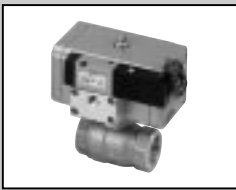
Model	A	B	C	D	E	F	G	H
CHG-R*-25	76	41	110	152	Rc 1	173	38	32
CHG-R*-32	84	50	116	163	Rc1/4	173	38	32
CHG-R*-40	94	57	162	215	Rc1/2	244	53	38
CHG-R*-50	108	70	171	232	Rc 2	244	53	38

Optional dimensions (Page 549)

Refer to page 528 for the dimensions with limit switch.

HNB/G
 USB/G
 FAB/G
 FGB/G
 FVB
 FWB/G
 FHB
 FLB
 AB
 AG
 AP/AD
 APK/
 ADK
 For
 dry air
 Explosion
 proof
 HV/
 HVL
 SAB/
 SVB
 NP/NAP/
 NVP
CHB/G
 MXB/G
 Other G.P.
 systems
 PD/FAD/
 PJ
 CVE/
 CVSE
 CPE/
 CPD
 Medical
 analysis
 Custom
 order

Compact rotary valve
 Air operated ball valve 3 port valve



Air operated ball valve 2 port valve with solenoid valve
(compact rotary valve)

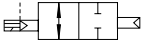
CHB-V*/CHB-X* CHBF-V*/CHBF-X* Series

● Port size: Rc3/8 to Rc2

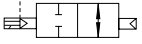


JIS symbol

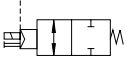
- CHB-V1
CHBF-V1
(Double acting - NC)



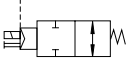
- CHB-V2
CHBF-V2
(Double acting - NO)



- CHB-X1
CHBF-X1
(Single acting - NC)



- CHB-X2
CHBF-X2
(Single acting - NO)



Common specifications

Descriptions	Double acting type		Single acting type	
	CHB-V* (standard bore) CHBF-V* (full bore)		CHB-X* (standard bore) CHBF-X* (full bore)	
Actuation	Solenoid valve mounted type: Double acting		Solenoid valve mounted type: Single acting	
Working fluid	Water, hot water, air, oil (500mm ² /s or less)			
Working pressure range MPa	0 to 1.0			
Withstanding pressure (water) MPa	2.0			
Fluid temperature °C	0 to 80 (no freezing)			
Ambient temperature °C	-10 to 60 (no freezing)			
Working environment	Indoors			
Valve seat leakage cm ³ /min	0 (under 1MPa water pressure)			
Installation attitude	Free			
Cycle rate Cycle/min.	1 or less			
Rotary actuator	Pilot fluid Compressed air			
	Lubrication Not required (if lubrication is required, use turbine oil Class 1, ISO VG32.)			
	Withstanding pressure (water) MPa		1.05	
	Working pressure range MPa		0.35 to 0.7	
	Fluid temperature °C		5 to 60	
	Port size	IN port	Rc1/8	
CHB body port size Rc3/8 to Rc1 1/4: Rc1/8 CHB body port size Rc1 1/2 to Rc2: Rc1/4 CHBF body port size Rc1/2 to Rc1: Rc1/8 CHBF body port size Rc1 1/4 to Rc1 1/2: Rc1/4				
	EHX port	Rc1/8		

Electrical specifications

Rated voltage		100 VAC (50/60Hz), 200 VAC (50/60Hz), 24 VDC	
Inrush current (A)	100 VAC	0.056/0.044 (50/60Hz)	
	200 VAC	0.028/0.022 (50/60Hz)	
	24 VDC	0.075	
Holding current (A)	100 VAC	0.028/0.022 (50/60Hz)	
	200 VAC	0.014/0.011 (50/60Hz)	
	24 VDC	0.075	
Power consumption (W)	100 VAC	1.8/1.4 (50/60Hz)	
	200 VAC	1.8/1.4 (50/60Hz)	
	24 VDC	1.8	
Insulation class		Class B molded coil	
Protection structure		Dust proof	
Voltage fluctuation range		±10%	

Individual specifications

Descriptions	Port size	Orifice (mm)	Cv flow factor	Mass (kg)	
				Double acting	Single acting
Series					
Standard bore	CHB-V*/X*-10-*	Rc3/8	10	1.0	1.3
	CHB-V*/X*-15-*	Rc1/2	10	1.2	1.3
	CHB-V*/X*-20-*	Rc3/4	15	1.6	1.5
	CHB-V*/X*-25-*	Rc 1	20	2.9	2.4
	CHB-V*/X*-32-*	Rc1 1/4	25	5.0	2.9 (3.0)
	CHB-V*/X*-40-*	Rc1 1/2	32	9.8	2.8 (2.9) 5.0 (5.1)
Full bore	CHB-V*/X*-50-*	Rc 2	40	12.5	3.6 (3.7) 5.8 (5.9)
	CHBF-V*/X*-15-*	Rc1/2	15	2.3	1.4 1.5
	CHBF-V*/X*-20-*	Rc3/4	20	5.1	1.5 2.4
	CHBF-V*/X*-25-*	Rc 1	25	6.6	2.4 2.9
	CHBF-V*/X*-32-*	Rc1 1/4	32	11.4	2.8 5.0
CHBF-V*/X*-40-*	Rc1 1/2	40	17.6	3.6 5.8	

Note 1: Models above show basic body materials. See "How to order" about other combinations.

Note 2: CHB-V*/X*-10-* is a full bore.

Note 3: When a limit switch is used, weight increases +0.2 kg for 1 switch and +0.3 kg for 2.

Note 4: CHB-X*-40/50-*, CHBF-X*-32/40-* are not compatible with the limit switch.

() shows values for stainless steel body

How to order

CHB - V1 - 25 - O B - W S - AC100V

CHBF

Series

A Actuator

B Port size

*1

C Body material

D Coil option

E Limit switch

*2

*3

F Other options

*4

G Voltage

Symbol	Descriptions	Series	
		CHB (Standard bore)	CHBF (Full bore)
A Actuator			
V1	Double acting NC (normally closed) types	●	●
V2	Double acting NO (normally open) types	●	●
X1	Single acting NC (normally closed) types	●	●
X2	Single acting NO (normally open) types	●	●
B Port size			
10	Rc 3 / 8	●	
15	Rc 1 / 2	●	●
20	Rc 3 / 4	●	●
25	Rc 1	●	●
32	Rc 1 1/4	●	●
40	Rc 1 1/2	●	●
50	Rc 2	●	
C Body material			
0	Bronze (CAC407)	●	●
E	Stainless steel (SCS13)	●	
N	Stainless steel (SCS13), oil-prohibited specifications	●	
D Coil option			
Blank	Grommet lead wire	●	●
B	Small terminal box,	●	●
L	Small terminal box + light	●	●
C	C-connector + lead wire	●	●
C2	C-connector + lead wire Surge suppressor + light	●	●
D	D-connector + lead wire	●	●
D2	D-connector + lead wire Surge suppressor + light	●	●
E Limit switch			
Blank	Without switch	●	●
H	Detection at valve open	●	●
V	Detection at valve closed	●	●
W	With 2 switches	●	●
F Other options			
Blank	Blank	●	●
S	Metering valve with silencer *4	●	●
G Voltage			
AC100V	100 VAC 50/60Hz, 110 VAC 60Hz	●	●
AC200V	200 VAC 50/60Hz, 220 VAC 60Hz	●	●
DC24V	24 VDC	●	●

*1: Port size 10 is a full bore, but the model is CHB.

2: CHB-X-40/50-*, CHBF-X*-32/40 are not compatible with the limit switch.

*3: OMRON D4E-1G20N

*4: CDK SMW2-6A is enclosed with product.

<Example of model number>

CHB- VAC 1-25-OB-WS-AC100V

Series: CHB (standard bore)

- A** Actuator : Double acting NC (normally closed) type
- B** Port size : Rc1
- C** Body material : Bronze
- D** Coil option : Small terminal box
- E** Limit switch : With 2 switches
- F** Other options : Metering valve with silencer
- G** Voltage : 100 VAC 50/60Hz, 110 VAC 60Hz

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/AD

APK/ADK

For dry air

Explosion proof

HVB/HVL

SAB/SVB

NP/NAP/NVP

CHB/G

MXB/G

Other G.P. systems

PD/FAD/PJ

CVE/CVSE

CPE/CPD

Medical analysis

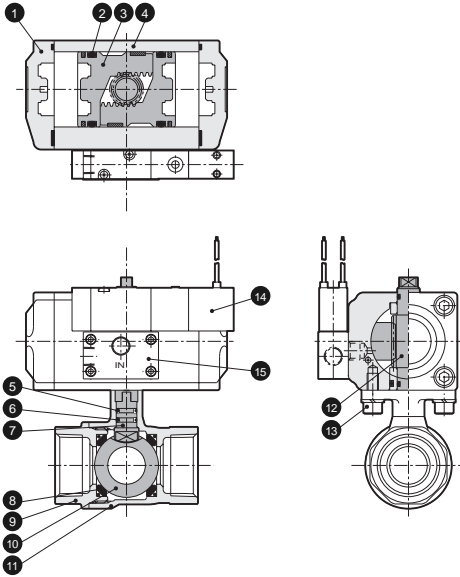
Custom order

Compact rotary valve with solenoid valve
Air operated ball valve 2 port valve

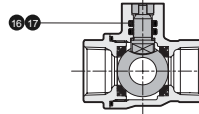
CHB-V*/CHBF-V* Series

Internal structure and main parts material: CHB-V*/CHBF-V* Series

- CHB-V*-10/15/20/25-*
- CHBF-V*-15/20-*



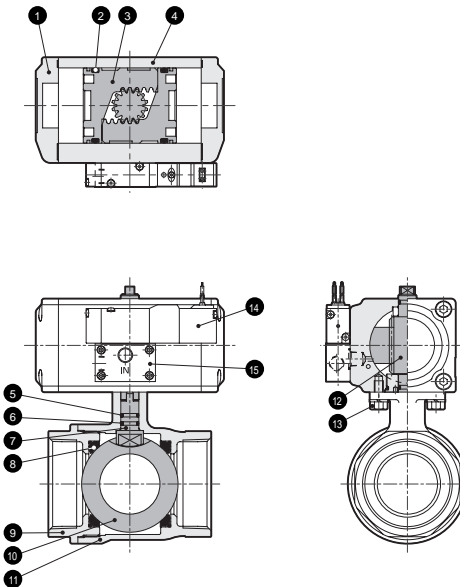
- Oil-prohibited specifications (ball valve)
CHB-V*-10/15/20/25-[N]



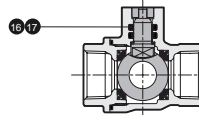
No.	Parts name	Material
1	Cylinder cap	ADC12 Aluminum alloy die-casting
2	O ring	NBR Nitrile rubber
3	Piston	ADC12 Aluminum alloy die-casting
4	Cylinder body	A6063 Aluminum
5	O ring	NBR (FKM) Nitrile rubber (fluoro rubber)
6	O ring	FKM Fluoro rubber
7	Shaft	SUS303 (SUS304) Stainless steel (stainless steel)
8	Valve seat	PTFE Tetrafluoroethylene resin
9	Valve cap	CAC407 (SCS13) Bronze casting (stainless steel casting)
10	Valve ball	C3771, Cr plated (SUS304) Brass, chrome plated (Stainless steel)
11	Valve body	CAC407 (SCS13) Bronze casting (stainless steel casting)
12	Stem	SUS303 Stainless steel
13	Hexagon socket head cap screw	SUSXM7 Stainless steel
14	Solenoid valve (4KB119-00)	
15	Block	A2017 Aluminum
16	O ring	FKM Fluoro rubber
17	Sealing ring	UHMW-PE Ultra high molecular weight polyethylene

() shows values for stainless steel body

- CHB-V*-32/40/50-*
- CHBF-V*-25/32/40-*



- Oil-prohibited specifications (ball valve)
CHB-V*-32/40/50-[N]

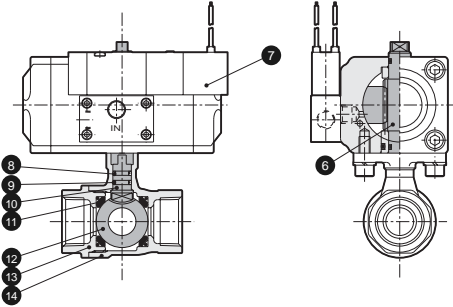
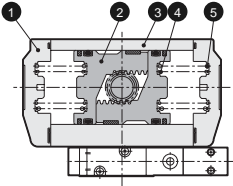


No.	Parts name	Material
1	Cylinder cap	ADC12 Aluminum alloy die-casting
2	O ring	NBR Nitrile rubber
3	Piston	ADC12 Aluminum alloy die-casting
4	Cylinder body	A6063 Aluminum
5	O ring	NBR (FKM) Nitrile rubber (fluoro rubber)
6	O ring	FKM Fluoro rubber
7	Shaft	SUS303 (SUS304) Stainless steel (stainless steel)
8	Valve seat	PTFE Tetrafluoroethylene resin
9	Valve cap	CAC407 (SCS13) Bronze casting (stainless steel casting)
10	Valve ball	C3771, Cr plated (SUS304) Brass, chrome plated (Stainless steel)
11	Valve body	CAC407 (SCS13) Bronze casting (stainless steel casting)
12	Stem	SUS303 Stainless steel
13	Hexagon head bolt	SUSXM7 Stainless steel
14	Solenoid valve (4KB119-00)	
15	Block	A2017 Aluminum
16	O ring	FKM Fluoro rubber
17	Sealing ring	UHMW-PE Ultra high molecular weight polyethylene

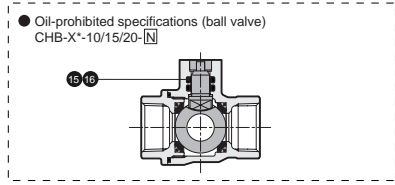
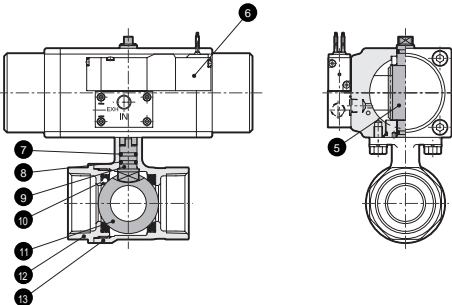
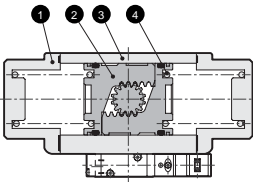
() shows values for stainless steel body

Internal structure and main parts material: CHB-X*/CHBF-X* Series

- CHB-X*-10/15/20-*
CHBF-X*-15-*

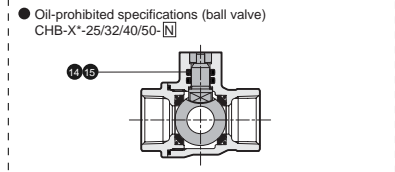


- CHB-X*-25/32/40/50-*
CHBF-X*-20/25/32/40-*



No.	Parts name	Material	
1	Cylinder cap	ADC12	Aluminum alloy die-casting
2	Piston	ADC12	Aluminum alloy die-casting
3	Cylinder body	A6063	Aluminum
4	Spring	SWP	Piano wire
5	Spring	SWP	Piano wire
6	Stem	SUS303	Stainless steel
7	Solenoid valve (4KB119-00)		
8	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
9	O ring	FKM	Fluoro rubber
10	Shaft	SUS303 (SUS304)	Stainless steel (stainless steel)
11	Valve seat	PTFE	Tetrafluoroethylene resin
12	Valve ball	C3771, Cr plated (SUS304)	Brass, chrome plated (Stainless steel)
13	Valve cap	CAC407 (SCS13)	Bronze casting (stainless steel casting)
14	Valve body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
15	O ring	FKM	Fluoro rubber
16	Sealing ring	UHMW-PE	Ultra high molecular weight polyethylene

() shows values for stainless steel body



No.	Parts name	Material	
1	Cylinder cap	ADC12	Aluminum alloy die-casting
2	Piston	ADC12	Aluminum alloy die-casting
3	Cylinder body	A6063	Aluminum
4	Spring	SWP	Piano wire
5	Stem	SUS303	Stainless steel
6	Solenoid valve (4KB119-00)		
7	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
8	O ring	FKM	Fluoro rubber
9	Shaft	SUS303 (SUS304)	Stainless steel (stainless steel)
10	Valve seat	PTFE	Tetrafluoroethylene resin
11	Valve ball	C3771, Cr plated (SUS304)	Brass, chrome plated (Stainless steel)
12	Valve cap	CAC407 (SCS13)	Bronze casting (stainless steel casting)
13	Valve body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
14	O ring	FKM	Fluoro rubber
15	Sealing ring	UHMW-PE	Ultra high molecular weight polyethylene

() shows values for stainless steel body

HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
For dry air
Explosion proof
HVB/HVL
SAB/SVB
NP/NAP/NVP

CHB/G

MXB/G

Other G.P. systems

PD/FAD/PJ

CVE/CVSE

CPE/CPD

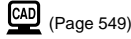
Medical analysis

Custom order

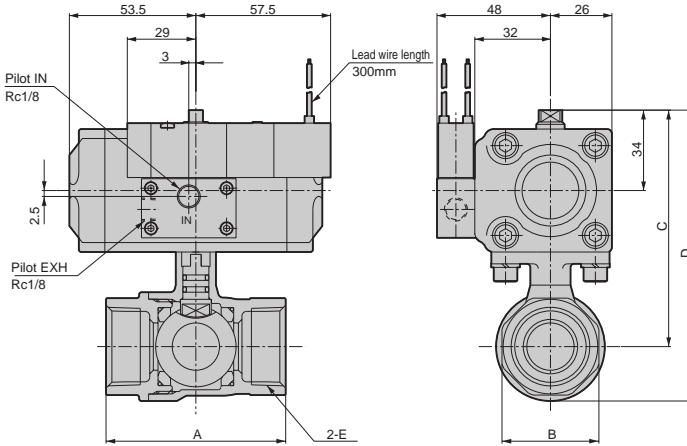
Compact rotary valve with solenoid valve
Air operated ball valve 2 port valve

CHB-V*/CHBF-V* Series

Dimensions: CHB-V*/CHBF-V* Series



- CHB-V*-10/15/20/25*-
CHBF-V*-15/20*-

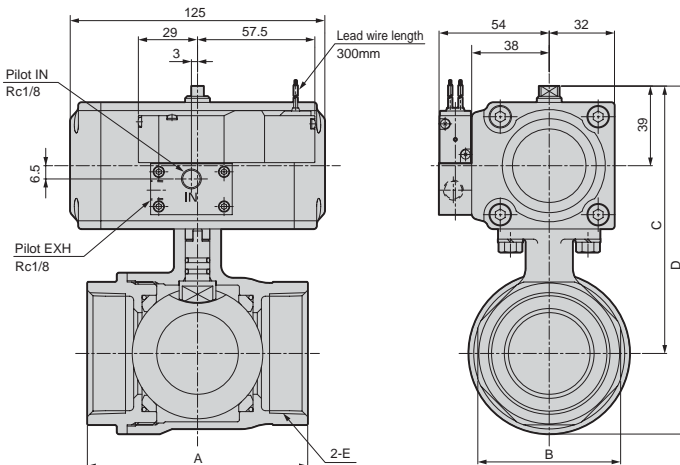


Model	A	B	C	D	E
CHB-V*-10*-	50 (56)	24 (28)	91	106 (107)	Rc3/8
CHB-V*-15*-	56	28	91	106 (107)	Rc1/2
CHB-V*-20*-	65	34	97	116.5 (117.5)	Rc3/4
CHB-V*-25*-	76	41	100	123 (124)	Rc 1

Model	A	B	C	D	E
CHBF-V*-15*-	65	28	97	116.5	Rc1/2
CHBF-V*-20*-	71	34	100	123	Rc3/4

() shows values for stainless steel body

- CHB-V*-32/40/50*-
CHBF-V*-25/32/40*-

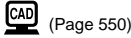


Model	A	B	C	D	E
CHB-V*-32*-	84	50	116	143.5 (145.5)	Rc11/4
CHB-V*-40*-	94	57	122	155.5 (157.5)	Rc11/2
CHB-V*-50*-	108	70	131	170.5 (171.5)	Rc 2

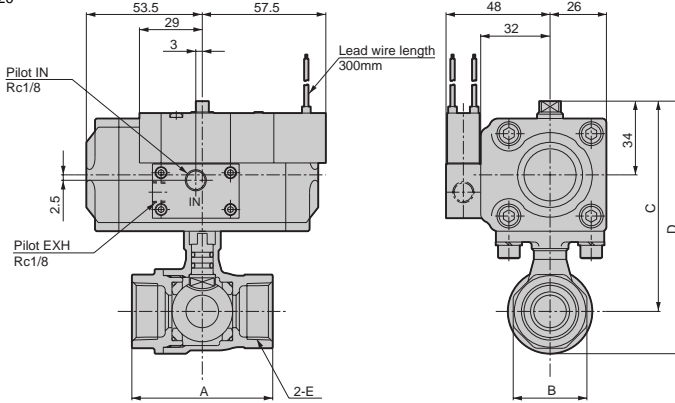
Model	A	B	C	D	E
CHBF-V*-25*-	84	41	116	143.5	Rc 1
CHBF-V*-32*-	95	50	122	155.5	Rc11/4
CHBF-V*-40*-	107	57	131	170.5	Rc11/2

() shows values for stainless steel body

Dimensions: CHB-X*/CHBF-X* Series



- CHB-X*-10/15/20-*
- CHBF-X*-15-*

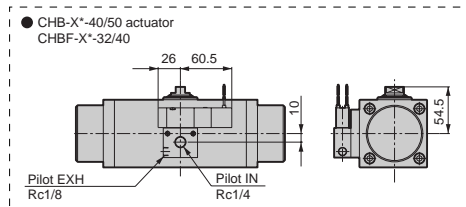
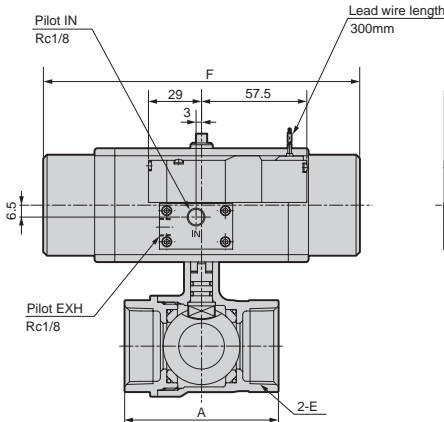


Model	A	B	C	D	E
CHB-X*-10-*	50 (56)	24 (28)	91	106 (107)	Rc3/8
CHB-X*-15-*	56	28	91	106 (107)	Rc1/2
CHB-X*-20-*	65	34	97	116.5 (117.5)	Rc3/4

Model	A	B	C	D	E
CHBF-X*-15-*	65	28	97	116.5	Rc1/2

() shows values for stainless steel body

- CHB-X*-25/32/40/50-*
- CHBF-X*-20/25/32/40-*



Model	A	B	C	D	E	F	G	H	J
CHB-X*-25-*	76	41	110	133 (134)	Rc 1	173	54	32	38
CHB-X*-32-*	84	50	116	143.5 (145.5)	Rc11/4	173	54	32	38
CHB-X*-40-*	94	57	162	195.5 (197.5)	Rc11/2	244	70.5	38	41
CHB-X*-50-*	108	70	171	210.5 (211.5)	Rc 2	244	70.5	38	41

Model	A	B	C	D	E	F	G	H	J
CHBF-X*-20-*	71	34	110	133	Rc3/4	173	54	32	38
CHBF-X*-25-*	84	41	116	143.5	Rc 1	173	54	32	38
CHBF-X*-32-*	95	50	162	195.5	Rc11/4	244	70.5	38	41
CHBF-X*-40-*	107	57	171	210.5	Rc11/2	244	70.5	38	41

() shows values for stainless steel body

Optional dimensions (Page 550)

Refer to page 528 for the dimensions with limit switch.

- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- For dry air
- Explosion proof
- HVB/HVL
- SAB/SVB
- NP/NAP/NVP
- CHB/G
- MXB/G
- Other G.P. systems
- PD/FAD/PJ
- CVE/CVSE
- CPE/CPD
- Medical analysis
- Custom order

Compact rotary valve with solenoid valve
Air operated ball valve 2 port valve



Air operated ball valve 3 port valve with solenoid valve
(compact rotary valve)

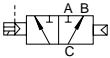
CHG-V*/CHG-X* Series

● Port size: Rc1/2 to Rc2

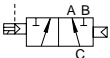


JIS symbol

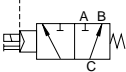
● CHG-V1 (Double acting - Constant B - Flow path C)



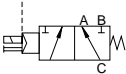
● CHG-V2 (Double acting - Constant A - Flow path C)



● CHG-X1 (Single acting - Constant B - Flow path C)



● CHG-X2 (Single acting - Constant A - Flow path C)



Common specifications

Descriptions	CHG-V* (Double acting)	CHG-X* (Single acting)	
Actuation	Solenoid valve mounted type: Double acting Solenoid valve mounted type: Single acting		
Working fluid	Water, hot water, air, oil (500mm ² /s or less)		
Working pressure range MPa	0 to 1.0		
Withstanding pressure (water) MPa	2.0		
Fluid temperature °C	0 to 80 (no freezing)		
Ambient temperature °C	-10 to 60 (no freezing)		
Working environment	Indoors		
Valve seat leakage cm ³ /min	0 (under 1MPa water pressure)		
Installation attitude	Free		
Cycle rate Cycle/min.	1 or less		
Pressurization direction	Limited to Port C pressurized		
Flow path shape	Multi-fluid type (90° rotation switching type)		
Rotary actuator	Pilot fluid	Compressed air	
	Lubrication	Not required (if lubrication is required, use turbine oil Class 1, ISO VG32.)	
	Withstanding pressure (water) MPa	1.05	
	Working pressure range MPa	0.35 to 0.7	0.4 to 0.7
	Fluid temperature °C	5 to 60	
	Port size	IN port	Rc1/8
EHX port		Rc1/8	Rc1/8
Electrical specifications			
Rated voltage	100 VAC (50/60Hz), 200 VAC (50/60Hz), 24 VDC		
Inrush current (A)	100 VAC	0.056/0.044 (50/60Hz)	
	200 VAC	0.028/0.022 (50/60Hz)	
	24 VDC	0.075	
Holding current (A)	100 VAC	0.028/0.022 (50/60Hz)	
	200 VAC	0.014/0.011 (50/60Hz)	
	24 VDC	0.075	
Power consumption (W)	100 VAC	1.8/1.4 (50/60Hz)	
	200 VAC	1.8/1.4 (50/60Hz)	
	24 VDC	1.8	
Insulation class	B		
Protection structure	Dust proof		
Voltage fluctuation range	±10%		

Individual specifications

Descriptions	Port size	Orifice (mm)	Cv flow factor	Mass (kg)	
				Double acting	Single acting
CHG-V*/X*-15-*	Rc1/2	10	3	1.3	1.4
CHG-V*/X*-20-*	Rc3/4	14	6	1.4	1.5
CHG-V*/X*-25-*	Rc 1	19	11	1.6	2.5
CHG-V*/X*-32-*	Rc1 1/4	23	16	2.5	3.6
CHG-V*/X*-40-*	Rc1 1/2	30	28	3.0	5.2
CHG-V*/X*-50-*	Rc 2	38	47	3.9	6.1

Note 1: Models above show basic body materials.

See "How to order" about other combinations.

Note 2: When a limit switch is used, weight increases +0.2 kg for 1 switch and +0.3 kg for 2.

Note 3: CHG-X*-40/50-* are not compatible with the limit switch.

How to order

CHG - **X1** - **15** - **E** **B** - **W** **S** - **AC200V**

Series

A Actuator

B Port size

C Body material

D Coil option

E Limit switch

* 1

* 2

F Other options

* 3

G Voltage

Symbol	Descriptions
A Actuator	
V1	Double acting Constant B - Flow path C
V2	Double acting Constant A - Flow path C
X1	Single acting Constant B - Flow path C
X2	Single acting Constant A - Flow path C
B Port size	
15	Rc 1 / 2
20	Rc 3 / 4
25	Rc 1
32	Rc 1 1/4
40	Rc 1 1/2
50	Rc 2
C Body material	
0	Bronze (CAC407)
E	Stainless steel (SCS13)
N	Stainless steel (SCS13), oil-prohibited specifications
D Coil option	
Blank	Grommet lead wire
B	Small terminal box,
L	Small terminal box + light
C	C-connector + lead wire
C2	C-connector + lead wire Surge suppressor + light
D	D-connector + lead wire
D2	D-connector + lead wire Surge suppressor + light
E Limit switch	
Blank	Without switch
H	A-C flow path detection
V	B-C flow path detection
W	With 2 switches
F Other options	
Blank	Blank
S	Metering valve with silencer *3
G Voltage	
AC100V	100 VAC 50/60Hz, 110 VAC 60Hz
AC200V	200 VAC 50/60Hz, 220 VAC 60Hz
DC24V	24 VDC

1: CHG-X-40/50-* are not compatible with the limit switch.

*2: OMRON D4E-1G20N

*3: CKD SMW2-6A is used.

<Example of model number>

CHG-X1-15-EB-WS-AC200V

Series: CHG

- A** Actuator : Single acting Constant B - Flow path C
- B** Port size : Rc1/2
- C** Body materials : Stainless steel (SCS13)
- D** Coil option : Small terminal box
- E** Limit switch : With 2 switches
- F** Other options : Metering valve with silencer
- G** Voltage : 200 VAC 50/60Hz, 220 VAC 60Hz

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/AD

APK/ADK

For dry air

Explosion proof

HVB/HVL

SAB/SVB

NP/NAP/NVP

CHB/G

MXB/G

Other G.P. systems

PD/FAD/PJ

CVE/CVSE

CPE/CPD

Medical analysis

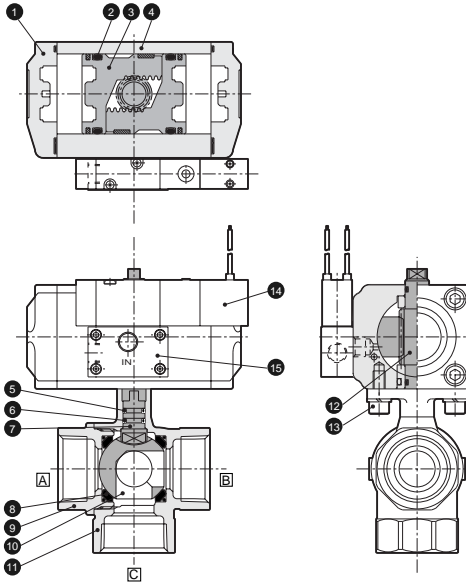
Custom order

Compact rotary valve with solenoid valve
Air operated ball valve 3 port valve

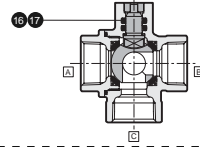
CHG-V* Series

Internal structure and main parts material: CHG-V* Series

● CHG-V*-15/20/25*



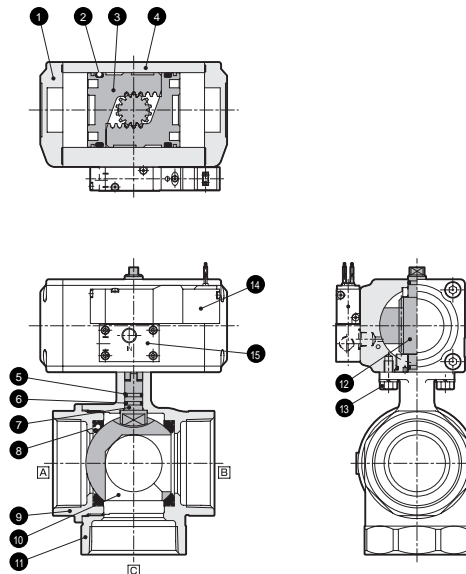
● Oil-prohibited specifications (ball valve) CHG-V*-15/20/25-[N]



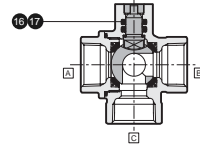
No.	Parts name	Material	
1	Cylinder cap	ADC12	Aluminum alloy die-casting
2	O ring	NBR	Nitrile rubber
3	Piston	ADC12	Aluminum alloy die-casting
4	Cylinder body	A6063	Aluminum
5	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
6	O ring	FKM	Fluoro rubber
7	Shaft	SUS303 (SUS304)	Stainless steel (stainless steel)
8	Valve seat	PTFE	Tetrafluoroethylene resin
9	Valve cap	CAC407 (SCS13)	Bronze casting (stainless steel casting)
10	Valve ball	C3771, Cr plated (SUS304)	Brass, chrome plated (Stainless steel)
11	Valve body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
12	Stem	SUS303	Stainless steel
13	Hexagon socket head cap screw	SUSXM7	Stainless steel
14	Solenoid valve (4KB119-00)		
15	Block	A2017	Aluminum
16	O ring	FKM	Fluoro rubber
17	Sealing ring	UHMW-PE	Ultra high molecular weight polyethylene

() shows values for stainless steel body

● CHG-V*-32/40/50*



● Oil-prohibited specifications (ball valve) CHG-V*-32/40/50-[N]

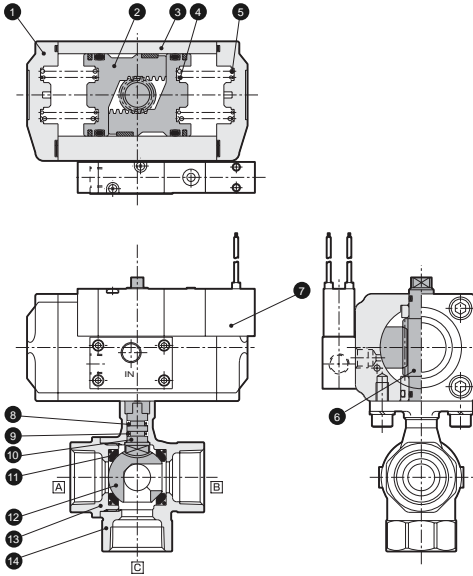


No.	Parts name	Material	
1	Cylinder cap	ADC12	Aluminum alloy die-casting
2	O ring	NBR	Nitrile rubber
3	Piston	ADC12	Aluminum alloy die-casting
4	Cylinder body	A6063	Aluminum
5	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
6	O ring	FKM	Fluoro rubber
7	Shaft	SUS303 (SUS304)	Stainless steel (stainless steel)
8	Valve seat	PTFE	Tetrafluoroethylene resin
9	Valve cap	CAC407 (SCS13)	Bronze casting (stainless steel casting)
10	Valve ball	C3771, Cr plated (SUS304)	Brass, chrome plated (Stainless steel)
11	Valve body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
12	Stem	SUS303	Stainless steel
13	Hexagon head bolt	SUSXM7	Stainless steel
14	Solenoid valve (4KB119-00)		
15	Block	A2017	Aluminum
16	O ring	FKM	Fluoro rubber
17	Sealing ring	UHMW-PE	Ultra high molecular weight polyethylene

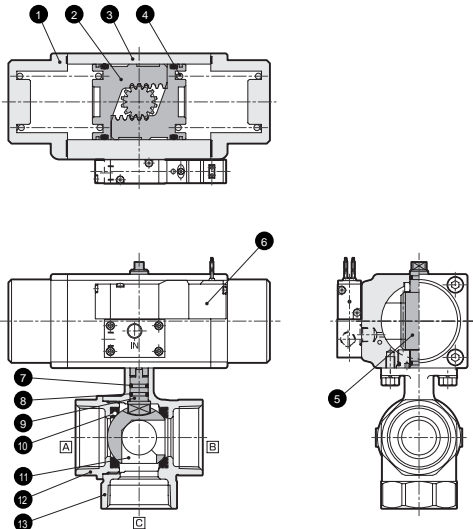
() shows values for stainless steel body

Internal structure and main parts material: CHG-X* Series

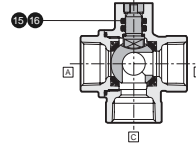
● CHG-X*-15/20-*



● CHG-X*-25/32/40/50-*



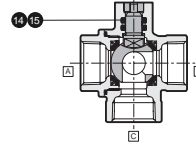
● Oil-prohibited specifications (ball valve) CHG-X*-15/20-[N]



No.	Parts name	Material	
1	Cylinder cap	ADC12	Aluminum alloy die-casting
2	Piston	ADC12	Aluminum alloy die-casting
3	Cylinder body	A6063	Aluminum
4	Spring	SWP	Piano wire
5	Stem	SWP	Piano wire
6	Stem	SUS303	Stainless steel
7	Solenoid valve (4KB119-00)		
8	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
9	O ring	FKM	Fluoro rubber
10	Shaft	SUS303 (SUS304)	Stainless steel (stainless steel)
11	Valve seat	PTFE	Tetrafluoroethylene resin
12	Valve ball	C3771, Cr plated (SUS304)	Brass, chrome plated (Stainless steel)
13	Valve cap	CAC407 (SCS13)	Bronze casting (stainless steel casting)
14	Valve body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
15	O ring	FKM	Fluoro rubber
16	Sealing ring	UHMW-PE	Ultra high molecular weight polyethylene

() shows values for stainless steel body

● Oil-prohibited specifications (ball valve) CHG-X*-25/32/40/50-[N]



No.	Parts name	Material	
1	Cylinder cap	ADC12	Aluminum alloy die-casting
2	Piston	ADC12	Aluminum alloy die-casting
3	Cylinder body	A6063	Aluminum
4	Spring	SWP	Piano wire
5	Stem	SUS303	Stainless steel
6	Solenoid valve (4KB119-00)		
7	O ring	NBR (FKM)	Nitrile rubber (fluoro rubber)
8	O ring	FKM	Fluoro rubber
9	Shaft	SUS303 (SUS304)	Stainless steel (stainless steel)
10	Valve seat	PTFE	Tetrafluoroethylene resin
11	Valve ball	C3771, Cr plated (SUS304)	Brass, chrome plated (Stainless steel)
12	Valve cap	CAC407 (SCS13)	Bronze casting (stainless steel casting)
13	Valve body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
14	O ring	FKM	Fluoro rubber
15	Sealing ring	UHMW-PE	Ultra high molecular weight polyethylene

() shows values for stainless steel body

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/AD

APK/ADK

For dry air

Explosion proof

HVB/HVL

SAB/SVB

NP/NAP/NVP

CHB/G

MXB/G

Other G.P. systems

PD/FAD/PJ

CVE/CVSE

CPE/CPD

Medical analysis


Custom order

Compact rotary valve with solenoid valve

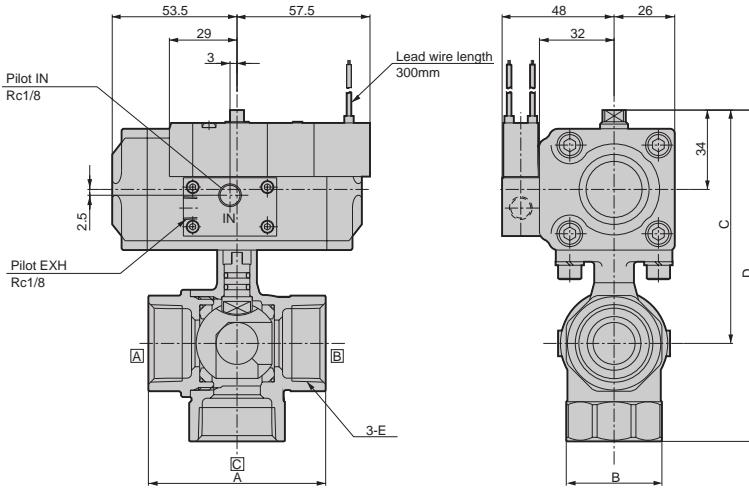
Air operated ball valve 3 port valve

CHG-V* Series

Dimensions: CHG-V* Series

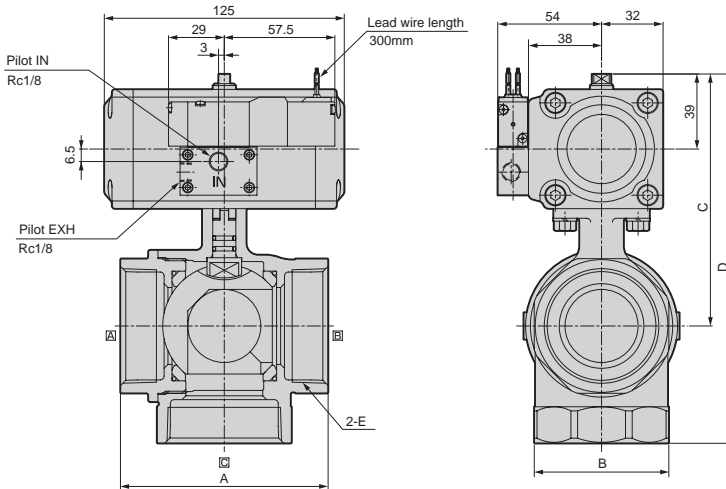
 (Page 550)

● CHG-V*-15/20/25*-



Model	A	B	C	D	E
CHG-V*-15*-	56	28	91	121	Rc1/2
CHG-V*-20*-	65	34	97	133	Rc3/4
CHG-V*-25*-	76	41	100	142	Rc 1

● CHG-V*-32/40/250*-

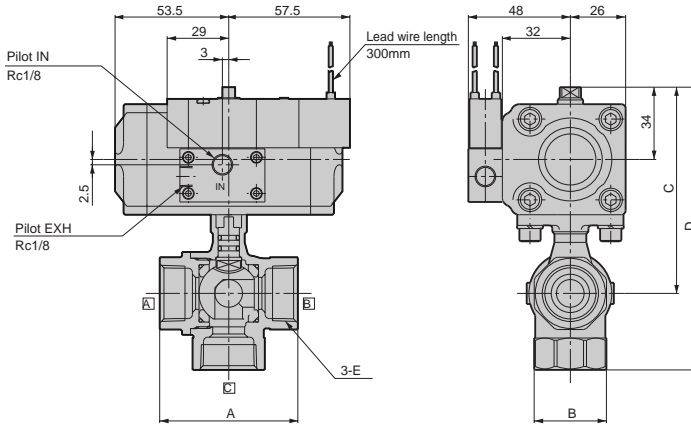


Model	A	B	C	D	E
CHG-V*-32*-	84	50	116	163	Rc1 1/4
CHG-V*-40*-	94	57	122	175	Rc1 1/2
CHG-V*-50*-	108	70	131	192	Rc 2

Dimensions: CHG-X* Series

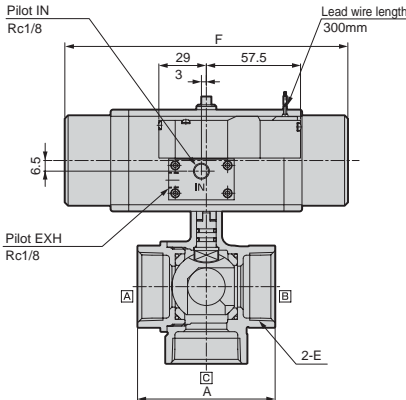
 (Page 550)

● CHG-X*-15/20-*

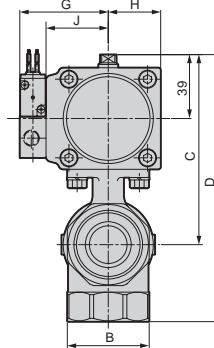
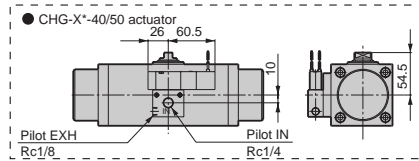


Model	A	B	C	D	E
CHG-X*-15-*	56	28	91	121	Rc1/2
CHG-X*-20-*	65	34	97	133	Rc3/4

● CHG-X*-25/32/40/50-*



Model	A	B	C	D	E	F	G	H	J
CHG-X*-25-*	76	41	110	152	Rc1	173	54	32	38
CHG-X*-32-*	84	50	116	163	Rc1 1/4	173	54	32	38
CHG-X*-40-*	94	57	162	215	Rc1 1/2	244	70.5	38	41
CHG-X*-50-*	108	70	171	232	Rc2	244	70.5	38	41



Optional dimensions (Page 550)

Refer to page 528 for the dimensions with limit switch.

- HNB/G
- USB/G
- FAB/G
- FGB/G
- FVB
- FWB/G
- FHB
- FLB
- AB
- AG
- AP/AD
- APK/ADK
- For dry air
- Explosion proof
- HVB/HVL
- SAB/SVB
- NP/NAP/NVP
- CHB/G**
- MXB/G
- Other G.P. systems
- PD/FAD/PJ
- CVE/CVSE
- CPE/CPD
- Medical analysis
- Custom order

Compact rotary valve with solenoid valve
Air operated ball valve 3 port valve