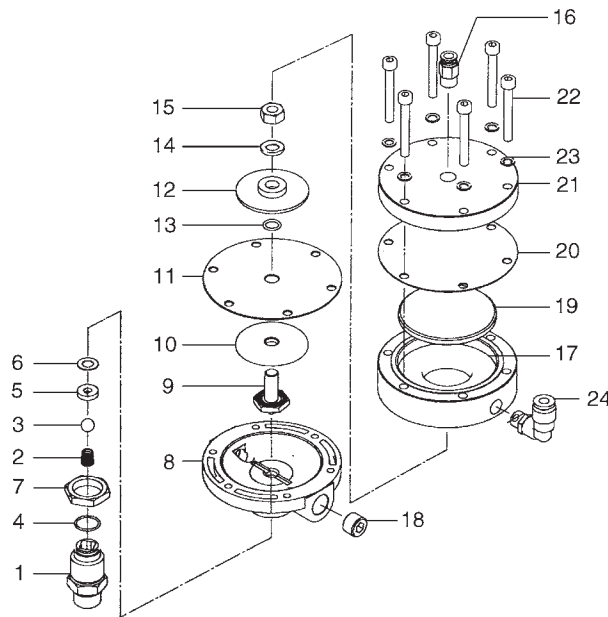


# SPARE PARTS LIST

DESCRIPTION	REF.PART
JOINT	1
VALVE SPRING	2
BALL	3 ●
O RING	4 ●
SEAT	5 ●
PACKING	6 ●
JAM NUT	7
MAIN BODY	8 ★
DIAPHRAGM BOLT	9 ●
DIAPHRAGM HOLDER	10 ●
DIAPHRAGM	11 ●
DIAPHRAGM STOPPER	12
O RING	13
SPRING WASHER	14
HEX. NUT	15
HALF UNION	16
DIAPHRAGM CAP	17
PLUG WITH HEX. HOLE	18
DIAPHRAGM HOLDER	19
DIAPHRAGM	20
DIAPHRAGM CAP	21
BOLT WITH HEX. HOLE	22
SPRING WASHER	23
ELBOW UNION	24
<b>ACCESSORIES:</b>	
ANTI-DUST CAP	
INSTRUCTION MANUAL	



- ★ As the only difference between FCV-31 and FCV-31N is the main body, specify ref. no. and part name when ordering parts.
- When unpacking , make sure there is no damage and that parts are not missing.
- If parts are missing, or have been damaged during transportation, do not use the equipment and contact the shop which sold it to you.
- Marked parts are wearable parts.

**ANEST IWATA**  
**ANEST IWATA Europe S.r.l.**  
 46, Corso Vigevano 10155, Torino Italy  
 Direct Tel. +39 011 - 22 74 402  
 Fax +39 011 - 22 74 406  
 info@anest-iwataeu.com  
 www.anest-iwataeu.com

**ANEST IWATA Italia S.r.l.**  
 46, Corso Vigevano 10155, Torino (Italy)  
 Tel. diretto +39 011 - 24 80 868 - Fax: +39 011 - 85 19 44  
 info@anest-iwata.it  
 www.anest-iwata.it

**ANEST IWATA Iberica**  
 Calle de Les Teixidores, 3-5  
 08918 - Badalona (Barcelona)  
 Tel.: +34 933 20 59 93 - Fax: +34 933 20 59 65  
 info@anest-iwata.es  
 www.anest-iwata.es

**ANEST IWATA Deutschland**  
 Mommsenstrasse 5, 04329 Leipzig  
 Telefon: +49 0341 241 4430 - Fax: +49 0341 241 443 29  
 info@anest-iwata.de  
 www.anest-iwata.de

## European Sales Branches:

**ANEST IWATA Scandinavia**  
 Ögärdesvägen 6C, 433 30 PARTILLE - Sweden  
 Tel. +46 (0)31 - 340 28 60 - Fax +46 (0)31 - 340 28 69  
 info@anest-iwata.se  
 www.anest-iwata.se

**ANEST IWATA France**  
 25 rue de Madrid - 38070 St Quentin Fallavier - France  
 Tél. +33 (0)4 - 74 94 59 69 - Fax +33 (0)4 - 74 94 34 39  
 info@anest-iwata.fr  
 www.anest-iwata.fr

**ANEST IWATA U.K.**  
 Unit 10 Little End Road - Eaton Socon  
 St. Neots - CAMBRIDGESHIRE  
 PE19 8JH  
 Tel.: +44 (0) 1480 405419 Fax: +44 (0) 1480 217610  
 enquiries@anest-iwata.co.uk  
 www.anest-iwata.co.uk

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# FCV-31 FCV-31N Flow Control Valve

**GB** Before use, adjustment or maintenance, it is important to read this instruction manual very carefully. This manual must be stored in a safe place for any future reference that may be necessary.



## IMPORTANT

This Flow Control Valve should be operated only by an adequately trained operator, for safe use and maintenance of the equipment. Any misuse or handling other than those indicated in this Instruction Manual is not covered by guarantee. ANEST IWATA disclaims all responsibility for any accident or damage caused by failure to observe the operational and safety procedures in this manual. In the interest of user friendliness, this manual contains information in a brief and concise form. For any additional information you may require regarding Flow Control Valve operations, or if any missing parts or any damage during transportation is found, please contact your nearest ANEST IWATA Company (see last cover page).

Be sure to observe warnings and cautions in this instruction manual. If not, it can cause paint ejection and serious bodily injury by drawing organic solvent. Be sure to observe following ⚠ marked items which are especially important.	
<b>⚠ WARNING</b>	Indicates a potentially hazardous situation which, if not avoided, may result in serious injury or loss of life.
<b>⚠ CAUTION</b>	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.
<b>IMPORTANT</b>	Indicates notes which we ask you to observe. The safety precautions in this instruction manual are the minimum necessary conditions. Follow national and local regulations regarding fire prevention, electricity and safety as well as your own company regulations.

## TECHNICAL SPECIFICATIONS

Model	Paint passages	Pressure range bar (PSI)	Adjustment air range bar (PSI)	Max. mat. flow l/min	Max. primary pressure bar (PSI)	Connection	Connection air tube ø	Weight g
FCV-31	Aluminium/Stainless steel	0.0~6.0 (0.0~87)	0.0~6.0 (0.0~87)	2.0	25 (360)	IN: G3/8B OUT: Rc 1/4	ø6 x ø4	750
FCV-31N	Stainless steel							950

## SAFETY WARNINGS



### PROTECTION OF HUMAN BODY

1. During painting, be sure to wear protective cover such as glasses, masks or gloves. Operate it in a well-ventilated area to avoid serious injury caused by paints or solvents which might enter your eyes or you might inhale. If you feel any abnormality, consult a medical doctor immediately.



### IMPROPER USE OF EQUIPMENT

1. Before operation, confirm that each section is properly fitted and adjusted.
2. Never spray towards people or animals. If done, it can cause inflammation of eyes or skin and injury may occur.
3. Be sure to reduce fluid pressure down to 0 bar before cleaning, disassembly or maintenance. If not, remaining pressure can cause bodily injury due to improper operation or scattering of cleaning liquid.
4. Connect flow control valve to fluid hose and pump securely to avoid leakage and looseness. Otherwise, hazardous hose movement and paint ejection can cause severe bodily injury. If you are injured, consult a doctor immediately without regard to the degree of injury.
5. Be sure to use at lower than max. primary pressure. Use at higher than max. primary pressure can cause damage which is very dangerous.



Manufactured by:  
**ANEST IWATA Corporation** 3176,Shinyoshida-cho, Kohoku-ku, Yokohama, 223-8501 Japan

# SAFETY WARNINGS



## OTHER PRECAUTIONS

1. Do not use it for food products or chemicals. If done, it can cause accident by corrosion of fluid passages or adversely affect health by mixed foreign matter.
2. If something goes wrong, immediately stop operation and find the cause. Do not use until you have solved the problem.



## IMPORTANT

1. Never alter the equipment.
2. When you replace parts, be sure to use our genuine parts. If not, it can cause insufficient performance or failure.

- With FCV-31, never use the following halogenated hydrocarbon solvents.
- With FCV-31N, make sure its exterior does not come into contact with the following halogenated hydrocarbon solvents: methyl chloride, ethyl chloride, dichloromethane, 1,2-dichloroethane, carbon tetrachloride, trichloroethylene, 1,1,1-trichloroethane

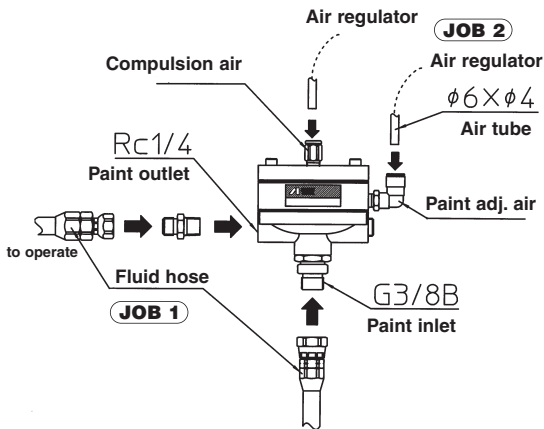
They can cause cracks or dissolution of aluminum parts caused by chemical reaction. (Be sure that all fluids and solvents are compatible with the equipment. We can supply a list of materials used to manufacture the product.)

# HOW TO CONNECT AND OPERATE

## IMPORTANT

- When connecting joints to exhaust thread section (Rc 1/4), apply medium strength adhesive to thread section or wind sealing tape around thread section to prevent liquid from leaking.
- Make sure that paint does not include dirt or foreign matter. Using paint containing foreign matter can cause leakage from seated section and unstable fluid output.
- Primary side fluid pressure supply must be set 0.5 bar higher than operating air pressure. If primary side fluid pressure supply is lower than operating air pressure, fluid output will be unstable.

### Connecting Example:



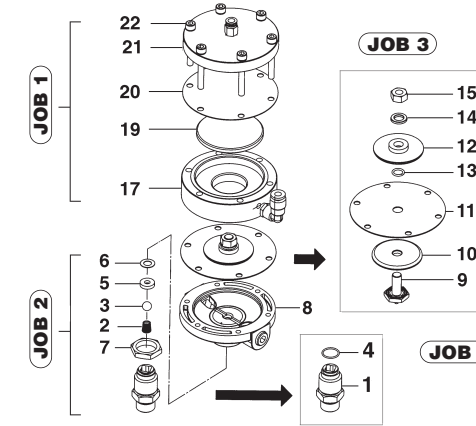
1. Securely connect fluid hose to fluid inlet and outlet.
  2. Connect air tube (φ6 x φ4) coming from air regulator.
- If you increase air pressure at air regulator, secondary side fluid pressure will increase.
  - If you decrease air pressure at air regulator, secondary side fluid pressure will decrease.

# DISASSEMBLY AND ASSEMBLY

## IMPORTANT

- Disassembly and assembly are explained for the FCV-31.
  - The only difference between FCV-31 and FCV-31N is the material of the main body (ref. part 8)
  - Whenever disassembling tungsten carbide ball and seat, make sure there is no wear or damage.
- If there is any wear or damage, replace with new one.

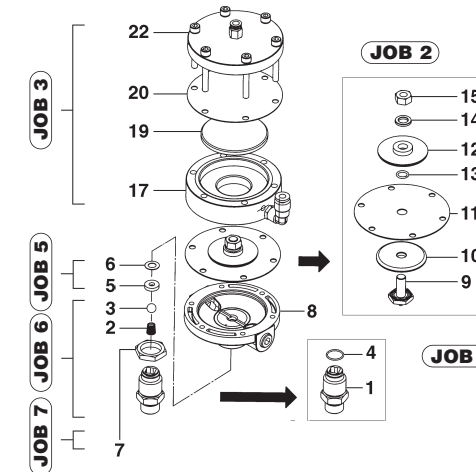
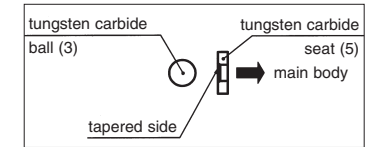
## DISASSEMBLY



- JOB 1.** Remove bolts with hex. hole (22), diaphragm cap (21), and diaphragm section (20).
- JOB 2.** Loosen jam nut (7), and remove joint (1), valve spring (2), ball (3), seat (5) and packing (6).
- JOB 3.** Remove hex. nut (15), spring washer (14), diaphragm stopper (12), O ring (13), diaphragm (11) and diaphragm holder (10).
- JOB 4.** If O ring (4) built into joint (1) is damaged or deformed, remove O ring from joint and replace.

## ASSEMBLY

- Fit tungsten carbide seat to main body so that tungsten carbide ball can be fitted on tapered side. Do not forget to fit packing. Faulty assembly can cause leakage from seated section, resulting in insufficient performance.
- Pay attention to tightening torque when fitting joint. Too much tightening can damage main body. Tighten torque of joint: 14.7 Nm (150kgf.cm)
- When fitting joint, make sure that tungsten carbide ball does not slip out of the seat.



- JOB 1.** Check for damage and foreign matter on each section.
- JOB 2.** Fit diaphragm holder (10), diaphragm (11), O ring (13), diaphragm stopper (12) and spring washer (14) into diaphragm bolt (9) and tighten hex. nut (15). Tightening torque of hex. nut : 9.8 Nm (100 kgf.cm)
- JOB 3.** Assemble diaphragm section (20) and diaphragm cap (17) on main body (8), and evenly tighten hex. bolts (22) diagonally.
- JOB 4.** Fit O ring (4) to joint (1).
- JOB 5.** Fit packing (6) and tungsten carbide seat (5) to main body (8).
- JOB 6.** Fit valve spring (2) and ball (3) to joint (1), and then fit joint to main body (8). Tightening torque of joint 14.7 Nm (150 kgf.cm)
- JOB 7.** Fix joint (1) with jam nut (7).

# PROBLEMS AND REMEDIES

**IMPORTANT:** Contact and ask the shop which sold it to you regarding \* marked items. Inocorrect remedy can cause insufficient performance.

Problems	Causes	Remedies
Secondary pressure increases too much	1. Flow control valve not properly seated, or foreign matter 2. Wear or damage on seat 3. Wear and damage on ball 4. Damaged packing	1. Clean and assemble again 2. Replace tungsten carbide seat (ref. part 5) 3. Replace tungsten carbide ball (ref. part 3) 4. Replace packing (ref. part 6)
Paint leaks	1. Loose joint (ref. part 1) 2. Loose bolt with hex. hole (ref. part 22) 3. Loose nut (ref. part 15) 4. Damaged diaphragm (ref. part 11) 5. Damaged O ring (ref. part 4)	1. Tighten 2. Tighten 3. Tighten 4. Replace* 5. Replace O ring (ref. part 4)
Secondary pressure does not increase	1. Low primary pressure	1. Increase primary side pressure
Pressure is unstable	1. Damaged valve spring (ref. part 2)	1. Replace valve spring (ref. part 2)