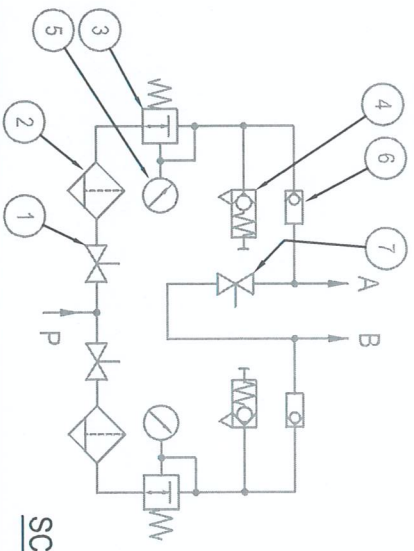
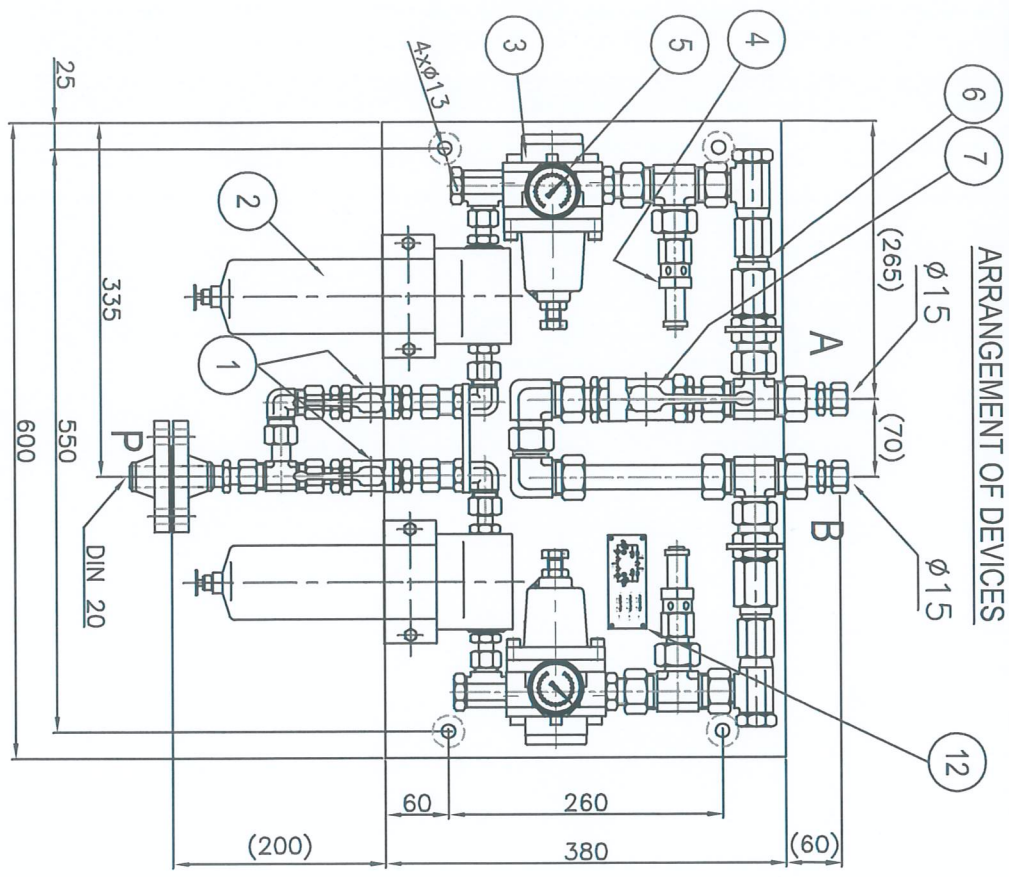


| MARK | Date     | Description Or Revision | Drawn   | CHK'D   | App'd    |
|------|----------|-------------------------|---------|---------|----------|
| Δ    | 20031209 | Original                | k.g.kim | y.d.na  | d.g.kang |
| Δ    | 20070409 | v/v no. 변경              | k.g.kim | y.d.na  | d.g.kang |
| Δ    | 20080212 | v/v 조작성 개선              | b.k.kim | k.g.kim | d.g.kang |

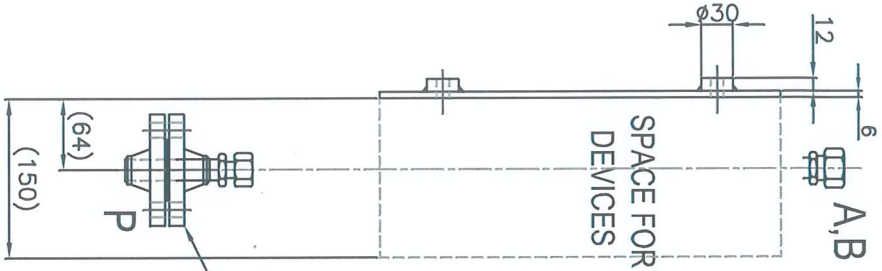
### ARRANGEMENT OF DEVICES



SCHEMATIC DIAGRAM



### SPACE FOR DEVICES



### TECHNICAL DATA :

|                          |                |
|--------------------------|----------------|
| SUPPLY PRESSURE MAX.     | 30 bar         |
| OUTLET PRESSURE MIN.     | 1.0 bar        |
| OUTLET PRESSURE MAX      | 10.0 bar       |
| OUTLET PRESSURE ADJUSTED | 7 bar          |
| FLOW RATE                |                |
| SUPPLY PRESSURE 30bar    | 4000 NI / min  |
| SUPPLY PRESSURE 15bar    | 2100 NI / min  |
| SAFETY VALVE             |                |
| RESPONSE PRESSURE        | 8.5 bar        |
| FILTER, POROSITY         | 25 μm          |
| AMBIENT TEMPERATURE      | 273K to 353K   |
| ADMISSIBLE MEDIUM        | COMPRESSED AIR |

- 8 9 10 11

|    |                       |               |   |           |  |
|----|-----------------------|---------------|---|-----------|--|
| 12 | NAME PALTE            |               | 1 |           |  |
| 11 | NUT                   | P040H0012000  | 4 | M12       |  |
| 10 | BOLT                  | P000E0012050  | 4 | M12 x 50L |  |
| 9  | GASKET                | EN14S2754     | 1 |           |  |
| 8  | FLANGE                | EN362N0027    | 2 |           |  |
| 7  | CUT OFF COCK          | 4902 20 27    | 1 |           |  |
| 6  | CHECK VALVE           | SCV-F12G-B    | 2 |           |  |
| 5  | PRESSURE GAUGE        | ø50           | 2 |           |  |
| 4  | SAFETY VALVE          | 134 607 003 0 | 2 |           |  |
| 3  | PRESSURE REDUCING V/V | HR40P-G20     | 2 |           |  |
| 2  | AIR FILTER            | J2SL          | 2 |           |  |
| 1  | CUT OFF COCK          | 0469 13 21    | 2 |           |  |

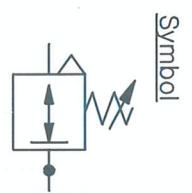
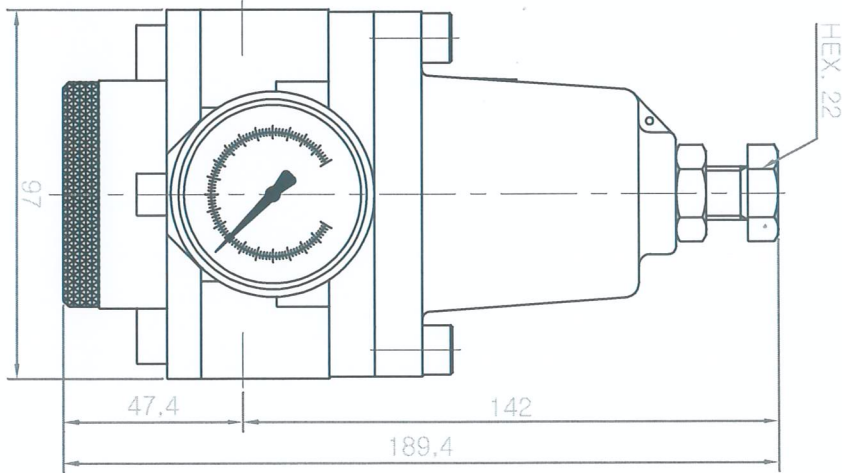
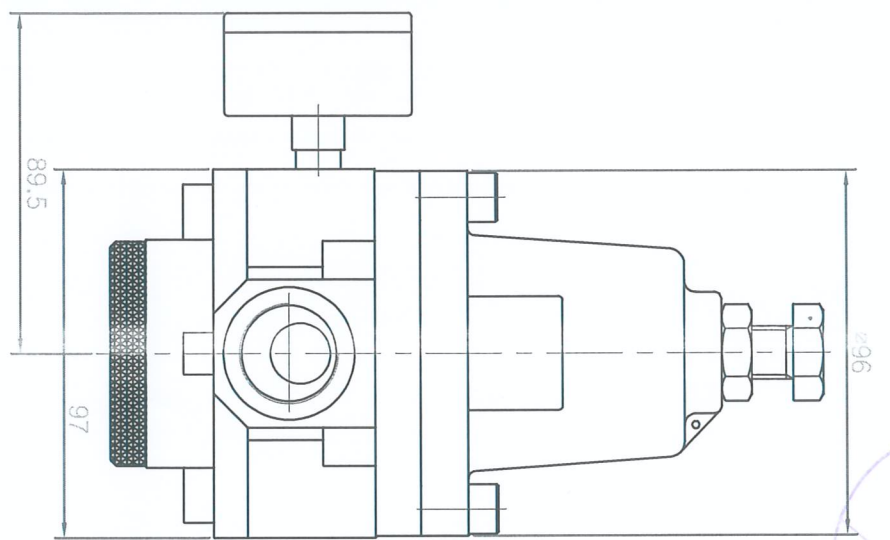
  

| Model No. | Type | Scale | Projection | Size | TITLE  |
|-----------|------|-------|------------|------|--|
| TM-PRU02  |      | 1 : 5 | 1st        | A3   | PRESS. REDUCING VALVE UNIT<br>(P/N : 280100279A) |

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15A3904-2

ITEM : 1



| MARK | Date     | Description Of Revision     | Drawn    | Chk'd   | App'd    |
|------|----------|-----------------------------|----------|---------|----------|
| △    | 20070727 | Original                    | d.h.Cho  | k.g.Kim | d.g.Kang |
| △    | 20130329 | PRESS. GAUGE : OIL 충전식으로 변경 | w.j.Jung | /       | d.g.Kang |

**NOTE**

1. MAKER : LeBe
2. TYPE NO. : HR40P-G20
3. WORKING PRESSURE : MAX. 40 BAR
4. SECONDARY PRESSURE : 0.5 ~ 10 BAR
5. ADMISSIBLE MEDIUM : COMPRESSED AIR
4. AMBIENT TEMPERATURE : -15 ~ 70°C
5. FLOW RATE : 6800 l/min  
(7 BAR, ΔP = 1 BAR)
6. CONNECTION : PF 3/4"
7. BODY MATERIAL : DIE CAST AL
8. WEIGHT : 2.1kg

**△ PRESSURE GAUGE**

1. MAKER : DAHO or similar
2. SIZE : <math>\varnothing 50</math>(WITH OIL FILLED)
3. TYPE : Bourdon tube
4. RANGE : 0 ~ 16 BAR
5. CONNECTION : PT 1/4"

| No | DESCRIPTION | MATERIAL | Q'TY | REMARKS |
|----|-------------|----------|------|---------|
| 1  | HR40P-20G   |          |      |         |

|                         |                |                               |
|-------------------------|----------------|-------------------------------|
| Type : HR40P-20G        | Projec. :      | Title : PRESSURE REDUCING V/V |
| Scale : 2/1             | Size : 1 각 1 개 |                               |
| Drawing No. : 10H3001-1 |                |                               |
| Sheet No. : 6           |                |                               |

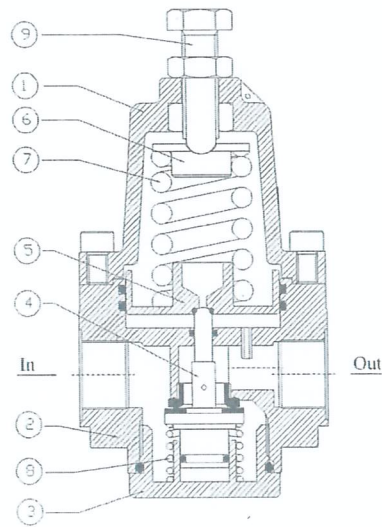
**MMC**  
MIRAE  
MECHATRONICS CO.

|         |                              |
|---------|------------------------------|
| Product | High Pressure Reducing Valve |
| Model   | HR40P-G20                    |
| Maker   | LEBE                         |



## 1. Specifications and Main Parts

| Item                     | Specification                      |
|--------------------------|------------------------------------|
| Working pressure         | max. 40 bar                        |
| Secondary pressure range | 0.5 ~ 10 bar                       |
| Admissible medium        | compressed air                     |
| Ambient temperature      | -15 ~ 70 °C                        |
| Flow rate                | 6,500 l/min<br>(7 bar, ΔP: 1bar)   |
| Connection               | PF 3/4"                            |
| Body material            | Aluminium alloy<br>for die-casting |
| Weight                   | 2.1 kg                             |



| No. | Part Name      | Material     |
|-----|----------------|--------------|
| 1   | Upper body     | ADC          |
| 2   | Lower body     | ADC          |
| 3   | End cap        | Brass        |
| 4   | Poppet valve   | Brass        |
| 5   | Piston         | Brass        |
| 6   | Support        | Brass        |
| 7   | Control spring | Spring steel |
| 8   | Valve spring   | Spring steel |
| 9   | Adjusting bolt | S45C         |

## 2. Operating Method

- 1) Turn the adjusting bolt(9) clockwise to rise the secondary pressure, the control spring(7) is pressed and the poppet valve(4) is opened.  
Simultaneously, the secondary pressure rises and is constant when the adjusting bolt(9) stops.
- 2) Adjust the secondary pressure to target pressure seeing the pressure gauge.
- 3) Turn the adjusting bolt(9) counterclockwise to reduce the secondary pressure. If so, the secondary air is vented to the upper body(1) through the relief hole of piston(5).

### Notice!

- Because the relief pressure by the o-ring in the piston(5) is added when you set the target pressure as reducing the secondary pressure, you can not accurately set the target pressure.
- To avoid that problem, set the target pressure rising the secondary pressure if possible.

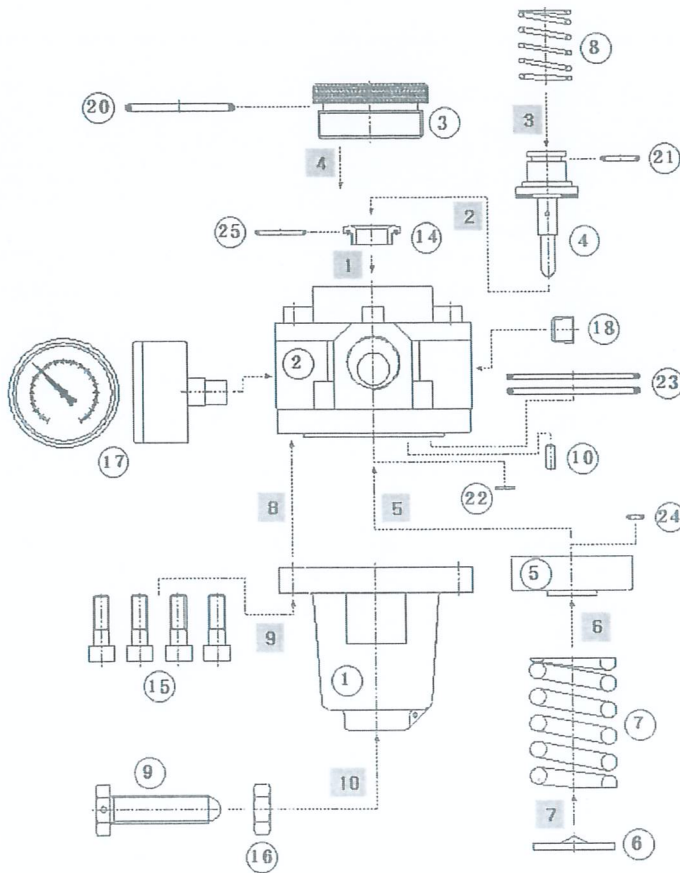
### Warning!

- Make sure that the pipe pressure is 0barg through the pressure gauge before disassembling.

## 3. Notice

- Make sure that the equipment and the pipes are connected correctly for the occurring air pressure.
- Depressurize the pressure reducing unit and the connected systems before you disconnected parts of the system. The sudden escape of compressed air can cause serious injury or damage.
- Use teflon grease on the o-rings.
- Contact your supplier if you detect a problem that you cannot solve with this manual.

#### 4. Assembly and Parts



| No. | Part name          | Q'ty | Part Number |
|-----|--------------------|------|-------------|
| 1   | Upper body         | 1    | HR01P01     |
| 2   | Lower body         | 1    | HR01P02     |
| 3   | End cap            | 1    | HR01P03     |
| 4   | Poppet valve       | 1    | HR01P04     |
| 5   | Piston             | 1    | HR01P05     |
| 6   | Support            | 1    | HR01P06     |
| 7   | Control spring     | 1    | HR01P07     |
| 8   | Valve spring       | 1    | HR01P08     |
| 9   | Adjusting bolt     | 1    | HR01P09     |
| 10  | Orifice            | 1    | HR01P10     |
| 11  | Name plate         | 1    | HR01P11     |
| 12  | Bracket-body       | 1    | HR01P12     |
| 13  | Bracket-gauge      | 1    | HR01P13     |
| 14  | Bushing            | 1    | HR01P14     |
| 15  | Assembly bolt      | 4    | M8WB25      |
| 16  | Lock nut           | 1    | M14HN       |
| 17  | Gauge              | 1    | G15B08PT    |
| 18  | Plug(Gauge)        | 1    | PL08PT      |
| 19  | Bolt-bracket       | 3    | M8WB10      |
| 20  | O-ring(end cap)    | 1    | OR48P       |
| 21  | O-ring(valve)      | 1    | OR14P       |
| 22  | O-ring(lower body) | 1    | OR07S       |
| 23  | O-ring(cylinder)   | 2    | OR60G       |
| 24  | O-ring(piston)     | 1    | OR05P1B     |
| 25  | O-ring(bushing)    | 1    | OR020K      |

#### 5. Maintenance Scheme

| Part   | Action |  | Period |
|--------|--------|--|--------|
| O-ring | Check  | Disassemble a pressure reducing valve and make sure all o-ring's state.<br>Change o-rings in out of condition.<br>Change the whole valve if the valve sheet is damaged and the piston is worn. | 2 year |
| Valve  | Change |  |        |
| Piston | Change |  |        |

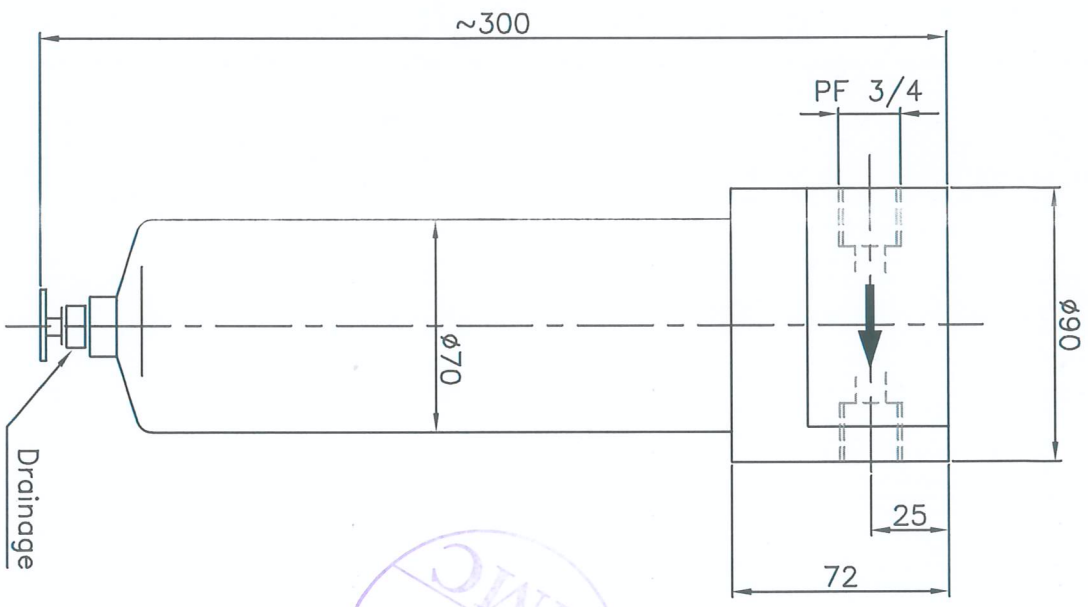
#### 6. Replacement Kit (HR01RP) ITEM : 2

| No. | Part name        | Part number | Q'ty |
|-----|------------------|-------------|------|
| 1   | Poppet valve     | HR01P04     | 1    |
| 2   | Piston           | HR01P05     | 1    |
| 3   | O-ring(piston)   | OR05P1B     | 1    |
| 4   | O-ring(end cap)  | OR48P       | 1    |
| 5   | O-ring(valve)    | OR14P       | 1    |
| 6   | O-ring(cylinder) | OR60G       | 2    |
| 7   | O-ring(bushing)  | OR020K      | 1    |

※ All replacement parts are ordered and packed in a bundle.



ITEM : 3



SYMBOL

| MARK | Date     | Description Of Revision    | Drawn    | Chk'd  | App'd    |
|------|----------|----------------------------|----------|--------|----------|
| △    | 20030625 | Original                   | K.g:Kim  | Y.d:Na | d.g:Kang |
| △    | 20030915 | SUPPLIER Added             | K.g:Kim  | Y.d:Na | d.g:Kang |
| △    | 20100205 | POROSITY 변경(25→40μm)       | m.j:Park | /      | d.g:Kang |
| △    | 20100215 | CONNECTIONS(NPT 1/2→PF3/4) | m.j:Park | /      | d.g:Kang |

NOTE

- MAKER : Parker ( LeBe )
- SUPPLIER : MMC
- TYPE NUMBER : J2SL
- FLOW RATE : 22,100 l/min
- WORKING PRESSURE : 105 bar
- ADMISSIBLE MEDIUM : Compressed air
- POROSITY : 40 μm
- CONNECTIONS : PF 3/4
- MATERIAL :
  - Housing : Ductile iron
  - Filter element : bronze

| No   | DESCRIPTION | MATERIAL   | Q'TY      | REMARKS     |
|------|-------------|------------|-----------|-------------|
| 1    |             |            |           |             |
| Type | Scale       | TITLE      |           |             |
|      | N/S         | AIR FILTER |           |             |
|      | Projec.     |            |           |             |
|      | Size        | A4         | 10H1607-3 | Sheet No. 5 |

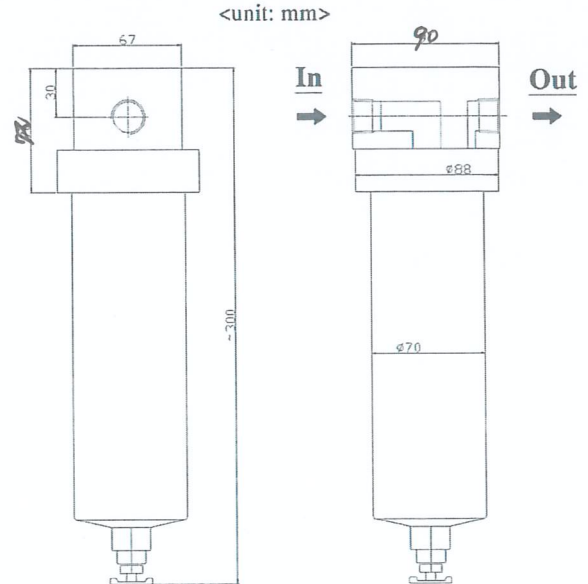
**MMC**  
MIRAE  
MECHATRONICS CO.



|         |                          |
|---------|--------------------------|
| Product | High Pressure Air Filter |
| Model   | J2SL                     |
| Maker   | Lebe(Parker)             |

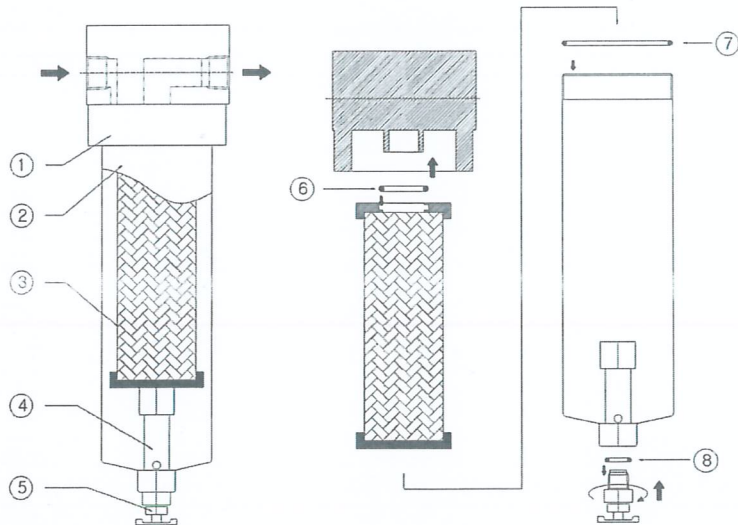
**1. Specifications and Size**

| ITEM              | SPECIFICATION        |
|-------------------|----------------------|
| Flow Rate         | 22,100/min           |
| Working Pressure  | Max. 105bar          |
| Admissible Medium | Compressed Air       |
| Porosity          | 40 μm                |
| Connection        | PF 3/4"              |
| Material          |                      |
| Head              | Die-casting AL alloy |
| Bowl              | AL6061               |
| Element           | Brass sintered       |



**2. Assembly and Parts**

- 1) Shut off the compressed air of inlet side.
- 2) Depressurize the pressure reducing unit to 0barg after closing the inlet valve.  
Check through the pressure gauge.
- 3) Turn the lower body of housing (B) counterclockwise and pull the lower body from the upper body (A).
- 4) Pull the filter element (C) and remove the old filter element (C).  
Don't loose the stopper (D) and the drain valve (E).
- 5) Place a new filter element (C).
- 6) Assemble the parts in the opposite direction.



| No. | Part name       | Q'ty | Part Number |
|-----|-----------------|------|-------------|
| 1   | Head            | 1    | HF01P01     |
| 2   | Bowl            | 1    | HF01P02     |
| 3   | Element         | 1    | 25CWC11-150 |
| 4   | Stopper         | 1    | HF01P04     |
| 5   | Drain valve     | 1    | HF01P05     |
| 6   | O-ring(element) | 1    | OR25P       |
| 7   | O-ring(bowl)    | 1    | OR138K      |
| 8   | O-ring(drain)   | 1    | OR12P       |

■ : replacement parts

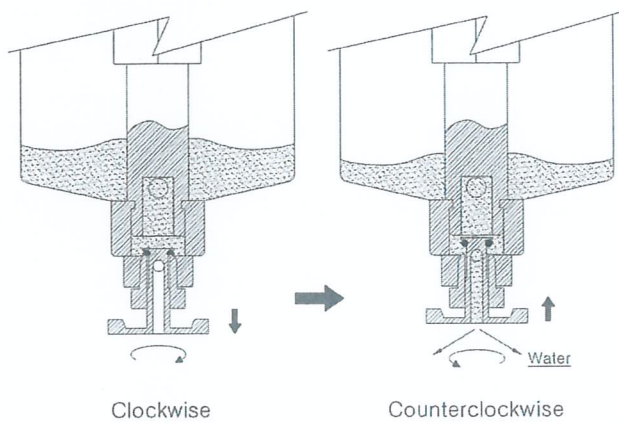
**Warning!**

Make sure that the pipe pressure is 0bar through the pressure gauge before disassembling.  
 Never supply the compressed air without the filter element; operating without the filter element will lead to expensive repair.

### 3. Notice

- Make sure that the equipment and the pipes are connected correctly for the occurring air pressure.
- Depressurize the pressure reducing unit and the connected systems before you disconnected parts of the system. The sudden escape of compressed air can cause serious injury or damage.
- Contact your supplier if you detect a problem that you cannot solve with this manual.

### 4. Drain Method



- 1) The manual handle of drain valve is a left handed screw. So, if you turn the manual handle clockwise, the drain handle moves a downward direction and the drain valve is closed.
- 2) To the contrary, if you turn the manual handle counterclockwise, the drain handle moves an upward direction and the drain valve is opened.

### 5. Maintenance Scheme

| Part        | Action |   | Period    |
|-------------|--------|---|-----------|
| Drain valve | Check  | Manually drain the stagnant water in the housing and close the drain valve.                           | Every day |
|             | Change | If the element surface is badly contaminated by particles, Replace the old element by a new one.      | 1 year    |
| element     | Check  | Disassemble the filter and confirm the element state. Clean the element with a compressed air nozzle. | 3 month   |
|             | Change | If the element surface is badly contaminated by particles, Replace the old element by a new one.      | 1 year    |
| O-ring      | Change | Change replacement o-rings in 1 year.   | 1 year    |

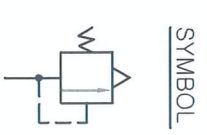
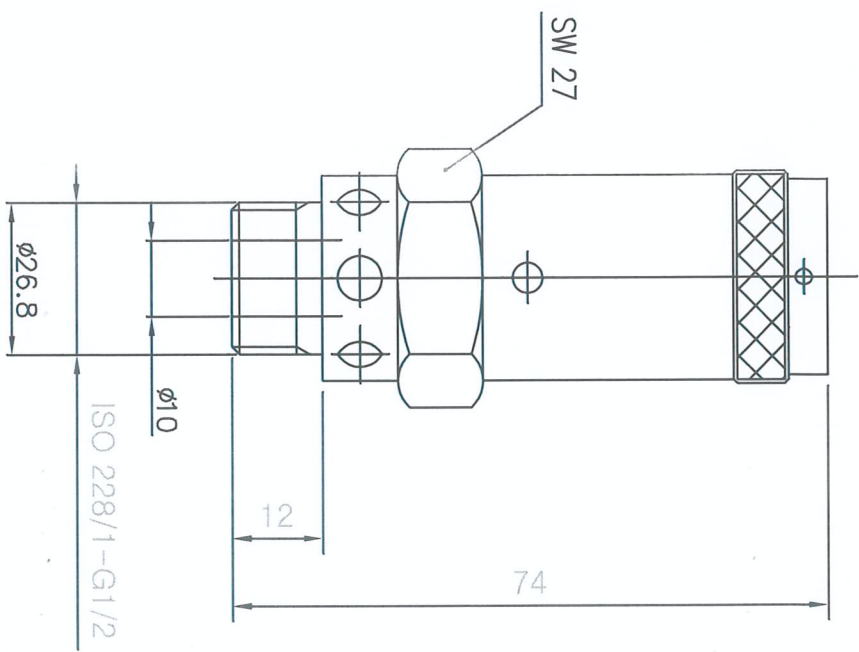
### 6. Replacement Kit (HF01RP)

| No. | Part name     | Part number | Q'ty |
|-----|---------------|-------------|------|
| 1   | Element       | 10CWC40-150 | 1    |
| 2   | Drain valve   | HF01P05     | 1    |
| 3   | O-ring(bowl)  | OR138K      | 1    |
| 4   | O-ring(drain) | OR12P       | 1    |

※ All replacement parts are ordered and packed in a bundle.



ITEM: 4



| MARK | Date     | Description Of Revision | Drawn   | Chk'd   | App'd    |
|------|----------|-------------------------|---------|---------|----------|
| △    | 20060315 | Original                | d.h.Cho | k.g.Kim | d.g.Kang |
| △    | 20070409 | Redawing                | d.h.Cho | k.g.Kim | d.g.Kang |

| Code Number | Opening press. bar | exhaust capacity NI/min |
|-------------|--------------------|-------------------------|
| 13797       | 5.5                | 2667                    |
| 2923        | 6.0                | 2883                    |
| 13805       | 6.5                | 3083                    |
| 2931        | 7.0                | 3300                    |
| 13821       | 8.0                | 3717                    |
| 13862       | 8.5                | 3917                    |
| 13870       | 9.0                | 4133                    |
| 2949        | 10.0               | 4550                    |
| 14027       | 10.5               | 4767                    |
| 2956        | 11.0               | 4967                    |
| 14613       | 11.5               | 5183                    |

NOTE

1. MAKE : J. LORCH GES
2. ADMISSIBLE MEDIUM : COMPRESSED AIR
3. AMBIENT TEMPERATURE : -10°C TO +180°C

| No                     | DESCRIPTION | MATERIAL     | Q'TY | REMARKS |
|------------------------|-------------|--------------|------|---------|
| 1                      |             |              |      |         |
| Type                   | Scale       | TITLE        |      |         |
|                        | N/S         | SAFETY VALVE |      |         |
|                        | Projec.     |              |      |         |
|                        | Size        |              |      |         |
|                        | A4          |              |      |         |
| MMc                    |             |              |      |         |
| MIRAE MECHATRONICS CO. |             |              |      |         |
| 1OH1001-1              |             | Sheet No.    | 7    |         |

