User Instruction

Before use of this respirator, read carefully and understand the User Instructions of Model RR-7 and the chemical cartridge to obtain designed protection.

Keep this instruction and user instruction of chemical cartridge as useful reference.

Chemical Cartridge Respirator (Chemical cartridge, Half facepiece)

Model RR-7

For safe and proper usage

- Use of chemical cartridge respirator is subject to limitations. If you do not follow this, your life and health may be at risk.
- The following special messages may appear throughout this instruction to warn of potential hazard or to attract attention to information for usage.

**DANGER** indicates an immediately hazardous situation. Misuse will result in serious injury, sickness or death.

**WARNING** indicates a potentially hazardous situation. Misuse can result in serious injury, sickness or death.

**CAUTION** indicates a potentially hazardous situation. Misuse can result in injury or damage accident.

### Scope of applications

Model RR-7 is a chemical cartridge respirator, designed to protect the wearer from breathing toxic gas, vapor, etc. Never use it in atmospheres described as "DANGER" in the column below. Type of chemical cartridge varies depending on the gas and dust existing in the working environment. Upon usage, read user instruction of the chemical cartridge carefully and use the cartridge that is suitable for the environment.

### Part names and structure

- Headband
- Type XB
- Upper Headband
- Facepiece
- Exhalation valve seat
- Exhalation valve cover
- Inhalation valve (circle type)
- Plastic molded cradle harness
- Cartridge holder
- Rubber Gasket
- Chemical Cartridge KGC-1 (KGC-MC is also installable).
- Ring.

### Chemical Cartridge Selection

Use cartridges (option)

Cartridges described below are available for use with RR-7. For gases not listed, use other gas mask/chemical cartridge respirator or supplied air respirator.

<table>
<thead>
<tr>
<th>Type of gas</th>
<th>Names of cartridge</th>
<th>National Assay No</th>
<th>Particulate filter (category)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Halogen gas</td>
<td>KGC-1L for halogen gas</td>
<td>No. N52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KGC-1L for halogen gas with mighty micron filter</td>
<td>No. N53</td>
<td>Yes (S1) *1</td>
</tr>
<tr>
<td>Acid gas</td>
<td>KGC-1L or for acid gas</td>
<td>JIS TB152</td>
<td>compatible</td>
</tr>
<tr>
<td></td>
<td>KGC-1M for organic vapor</td>
<td>No. N35</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KGC-1L for organic vapor</td>
<td>No. N36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KGC-1L for organic vapor with mighty micron filter</td>
<td>No. N37</td>
<td>Yes (S1) *1</td>
</tr>
<tr>
<td>Organic vapor</td>
<td>KGC-1L for organic vapor with mighty micron filter</td>
<td>No. N39</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KGC-1L or organic vapor with unimer filter</td>
<td>No. TN183</td>
<td></td>
</tr>
<tr>
<td>Ammonia</td>
<td>KGC-1L for ammonia</td>
<td>No. N90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KGC-1L or ammonia with mighty micron filter</td>
<td>No. N91</td>
<td>Yes (S1) *1</td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>KGC-1L for sulfur dioxide</td>
<td>No. N54</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KGC-1L for sulfur dioxide with mighty micron filter</td>
<td>No. N55</td>
<td>Yes (S1) *1</td>
</tr>
<tr>
<td>Hydrogen sulfide</td>
<td>KGC-1L for hydrogen sulfide</td>
<td>JIS TB152</td>
<td>compatible</td>
</tr>
</tbody>
</table>

*1 By installing on cartridge, the mighty micron filter can be used to remove dust that exists in oxygen gas or vapor. However, do NOT use these cartridges in the environment where downs, radioactive dusts, metal fume and/or oil mist exist.

*2 The unimer filter can be used to remove dust that exist with toxic gas or vapor. However, Do NOT use cartridges in the environment where downs, radioactive dusts and/or oil mist exist.

*3 The same test criteria as the national assay standard category S1 are used.

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Service life of chemical cartridges  In addition to the explanation below, read the user instruction attached to each cartridge.

Chemical cartridge loses decontamination capability when it reaches to breakthrough. It is important to understand the service life of the cartridge. Replace cartridge with a new one when it loses decontamination or particulate-filtering capability, whichever comes first.

- **Estimation of service life by breakthrough curve**
  Service life of cartridge varies depending on the gas concentration in the environment. Breakthrough curve, shown on the user instruction of cartridge, represents the relationship between the gas concentration level in the environment and estimated service life. When the used time reaches to the estimated service life, replace the cartridge with a new one. If the cartridge is repeatedly used, and used for a short period of time in each occasion and the gas concentration level in the environment remains constant, record the used time in the "Record of used time" column on the user instruction of the cartridge and replace the cartridge with a new one when the accumulation of the used time reaches to the estimated service life.

- **Estimation of service life by smell**
  Replace the cartridge with a new one when the wearer senses smell. However, sense of smell varies between individuals. And the sense of smell becomes paralyzed if the toxic gas leaks gradually. Therefore, it is dangerous to completely rely on smell.

- **Estimation of service life by inhalation resistance**
  Replace the cartridge with a new one when the inhalation resistance increases (when the wearer feels difficulty in breathing), regardless of decontamination capability remaining.

- **Estimation of service life by particulate-removing performance** (applies when a cartridge with a particulate-removing feature is used.)
  Refer to the user instruction attached to the cartridge for replacement schedule of the cartridge with a particulate-filtering feature.

**WARNING**

- For replacement schedule and applications of the cartridge, read user instructions attached to the cartridge.
- Estimation of service life using the breakthrough curve is just for reference purpose only. Replace cartridge with a new one well in advance for safety. Service life also varies depending on the amount of air breathed, humidity and temperature. Breakthrough curve attached to the cartridge has been made based on the test gases that are specified by Japanese national assay standard and JIS. Even with the same cartridge, estimated service life can vary, depending on the type of gas. Even if it is within estimated service life, and if the wearer notices gas smell, gas stimulation and/or gas taste, immediately escape to safe area with clean air, and replace the cartridge with a new one.
- Immediately evacuate to safe place with clean air and see physician when the wearer feels health disorders while using the chemical cartridge respirator.

**CAUTION**

- Residual service life of organic vapor cartridge, if used for more than half of its estimated service life and stored for 5 days or more, may become remarkably short. Replace the cartridge well in advance under this condition.
- It is dangerous to judge only by smell. Sense of smell varies between individuals and becomes paralyzed if the toxic gas leaks gradually. It is especially dangerous to judge by smell if the target gas is highly toxic; the contamination level in the working environment is high, and/or the smell of the target gas is weak.

**How to use**

Inspect the chemical cartridge respirator before each use following the <Inspection procedure> (Page 4).
Install the cartridge and don the respirator in a clean place without toxic substance.

1. **Installation of the cartridge**

**CAUTION**

- Open the bag of the cartridge just before use, as it is sensitive to humidity.

1. Open the plastic bag and take out the cartridge and user instruction. (Read the user instruction carefully and understand the contents).
2. Remove the ring by turning it counterclockwise.
3. Inspect that the rubber gasket is securely placed without misalignment and distortion on the cartridge holder.
4. Place the cartridge on top of the rubber gasket, as shown on the illustration.
5. Place the ring over the cartridge, align it with the cartridge holder groove and firmly tighten by turning it clockwise.
6. If the thread is caught in the groove of the cartridge holder or the cartridge is not stable, remove the cartridge and re-install it.

*Install and remove 2pcs of the cartridges at one time.*
2. FITTING INSTRUCTIONS

1. Place the plastic molded cradle harness on your crown of head.
2. Hold both ends of the headband and pull them evenly so that the respirator approaches to your face to cover your mouth and nose.
3. Fasten the buckle located behind of your neck by fitting the hook in the D-ring.
4. Adjust the respirator position on face for stable position by aligning it left and right, up and down.
5. Perform fit test after donning is completed.
6. To remove the respirator, remove the buckle.

**CAUTION**
- If the length of the headband cannot be adjusted, make the adjustment following <Adjustment of headband length>.
- Make sure that the headband is well elastic and not over-extended.
- Make sure that the length of the headband on the right and left is evenly tightened, or the respirator could not be donned and fit on face appropriately. Over-extended headband and/or longer headband than the other could be at risk of being caught up in machine.

< Adjustment of headband length > Remove the respirator first and adjust the length of the headband according to the instructions below. The length can be adjusted at buckle, hook and D-ring located at 4 positions of the upper and lower headbands.

- **Upper headband**
  1. To extend, hold the buckle and pull the headband to the direction of A.
  2. To shorten, hold the buckle and pull the headband to the direction of B.

- **Lower headband**
  Adjust the length using the headband with hook and D-ring. To loosen, release the tension of the headband by lifting both tabs of the D-ring.
  *Make sure that the length of the headband on the right and left is evenly tightened*

**Fit Test**

1. Cover the inhalation air inlet with fit testers (option).
2. Don the respirator, close the ends of the pipes with fingers, and inhale.
3. If the respirator is donned appropriately, it will be pressed against the wearer's face.
4. If the wearer feels air leak between face and facepiece, re-inspect components (including the inspection of each component, mainly the exhalation valve, the length of the headband and respirator position, etc.).
5. If good fit is obtained, make sure to remove the fit testers before entering into the workplace.

**WARNING**
- Make sure to perform fit test prior to each use. If not donned appropriately, toxic dust/gas could leak from the opening between face and facepiece, and the wearer could be at risk of inhaling.

**DANGER**
- Do NOT don the chemical cartridge respirator over towel. Do NOT use facelet, or toxic gas and/or dust could leak into the facepiece.

**CAUTION**
- If the headband is over-tightened, feeling of fitness may worsen, and the wearer may experience a feeling of discomfort after working for a long time.
- Use of respirator could cause skin roughness and/or eczema for those who have allergic tendency or fragile skin. In such case, stop using it and see physician.
- Do NOT apply shock and/or vibration on cartridge, or its performance level could decrease or it could get damaged.

Replacement of inhalation valves / exhalation valve Perform in a clean place without toxic substance.

**Replacement Schedule**
- Replace when crack, distortion, damage, dirt, and/or sticky surface is observed.

**Replacement of inhalation valve**
- Remove worn inhalation valve from retainer pin of the valve seat located inside of the respirator.
- Place a new valve in its position. Widen hole of the valve by fingers so that the retainer pin easily go through the hole.

**Replacement of exhalation valve**
- Open the tab of the exhalation valve cover and take the valve out by holding it with fingers.
- To install a new exhalation valve, insert the valve stem into the center hole of the exhalation valve seat. When the top of the stem comes out from the inner side of the valve seat, grasp the projected point of the valve stem and put it until stem flange appears outside of the center hole of the exhalation valve seat.
- Close the exhalation valve cover.

**Exhalation valve seat**

- To close
- To open

Replacement of headband  Replace the headband in a clean place without toxic substance.

Replacement schedule
Replace the headband with a new one when:
① Headband gets remarkably dirty;
② Buckle or plastic molded cradle harness is damaged; and/or,
③ The headband becomesinelastic or over-extended.

Replacement procedure
① Remove the headband holder from the strap slit, as shown on the illustration.
② To install a new headband, install the headband holder with the strap slit on the facepiece side, making sure that the top and bottom sides are positioned correctly.

Inspection

<table>
<thead>
<tr>
<th>Components to inspect</th>
<th>Check points</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facepiece Rubber parts</td>
<td>No cracks, no distortions, no holes, no sticky (detertorated) rubber and/or no remarkable dirt are found.</td>
<td>Replace the respirator with a new one. Clean the respirator if dirt is observed.</td>
</tr>
<tr>
<td>Cartridge holder Strip slit</td>
<td>No cracks, no distortions, no holes, and/or no remarkable dirt are found. Check if chemical cartridge can be installed properly.</td>
<td></td>
</tr>
<tr>
<td>Exhalation valve seat Exhalation valve cover</td>
<td>No cracks, no distortions, no scars, and/or no remarkable dirt are found.</td>
<td></td>
</tr>
<tr>
<td>Inhalation valve</td>
<td>No cracks, no distortions, no holes, no sticky (detertorated) rubber and/or no remarkable dirt are found.</td>
<td>Replace the part with a new one. Clean the part if dirt is observed.</td>
</tr>
<tr>
<td>Ring</td>
<td>No cracks, no distortions, no holes, and/or no remarkable dirt are found.</td>
<td></td>
</tr>
<tr>
<td>Exhalation valve</td>
<td>No cracks, no distortions, no scars, and/or no sticky surface due to rubber deterioration are found. No foreign objects such as dust are found.</td>
<td>If it is broken or sticky replace the component with a new one. Clean dust if any.</td>
</tr>
<tr>
<td>Headband Straps</td>
<td>Fully-elastic. It keeps necessary strength to hold respirator.</td>
<td>Replace the headband with a new one.</td>
</tr>
<tr>
<td>Plastic molded cradle harnes hook, and upper headband</td>
<td>No cracks, no distortions, and/or no chips are found. The buckle can be disconnected at ease and can be securely fastened.</td>
<td></td>
</tr>
<tr>
<td>Connections</td>
<td>There are no missing components.</td>
<td>Install the missing parts, or replace the part with a new one.</td>
</tr>
</tbody>
</table>

Maintenance and storage  Make sure to perform maintenance after each use and keep the respirator clean.


- Make sure to perform cleaning after removing the cartridge from the respirator.

  - Gently wipe dust and sweat adhered on the respirator with a dry or slightly wet cloth. Be sure not to damage the respirator.
  - Clean remarkable dirty with mild detergent diluted with warm water. Be careful not to scratch the respirator, especially the exhalation valve seat, exhalation valve and inhalation valves. Remove detergent by rinsing completely.
  - Wipe out residual water after cleaning and dry it out of direct sunlight.
  - Disinfect facial contact area and inside of the facepiece by wiping it with the alcohol-soaked cloth. Then wipe the alcohol completely.

- **WARNING**

  - Always keep the face-contacting area of the facepiece cushion clean. Presence of dirt on the facepiece cushion could cause skin roughness or skin irritation.
  - Dry alcohol completely or rinse and wipe out completely.

- **CAUTION**

  - Never use damp cloth and never use water to clean chemical cartridge. The use of damp cloth or water spoils gas removal capability of the chemical cartridge.

  - Clean the cartridges with a dry cloth. NEVER use water for cleaning.

2. Storage

- **Place for storage**

- **DANGER**

  - Shelf life of the chemical cartridge is two years from the date of manufacturing. Do NOT use cartridge stored for more than 2 years from the date of manufacturing.
  - Dispose of the used chemical cartridge as an industrial waste. Pack in securely sealed plastic bag so that toxic substance absorbed would not diffuse.

After cleaning, store the respirator in a dry place without heavy temperature fluctuations and/or high humidity. Do NOT pile up the cleaned respirators, as the facepiece headband, etc. could be damaged and/or distorted. Avoid a direct sunlight for storage. Prepare an exclusive storage place so that the storage condition can be checked at ease.

**Specifications**

- **Inhalation resistance** Internal standard 15Pa or less Average 79Pa
- **Exhalation resistance** 39 +/- 15Pa 45Pa
- **Increased value of carbon dioxide concentration / Dead space** 0.7% of less/ 290cm² or less 0.56%/ 224cm²
- **Weight** 157 +/- 20g 158g

Figures above are based on the medium-sized facepiece and headband type XRB, and without cartridges and optional accessories.

Replacement parts:
Call Koken or local distributor for the following replacement parts.
- **Inhalation valve** Circle type
- **Exhalation valve** Type T-6K
- **Headband** Type XRB
- **Ring**
  - Ring for Model R-5

Optional parts (sold separately):
- **Fit tester to check the fitness between the respirator and face**
  - For use with KGC-1 Fit tester Type L (2pcs required)
  - For use with KGC-5MC Fit tester Type U (2pcs required)