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# Yale New Haven Health System

## ELASTOMERIC RESPIRATOR Standard Operating Procedure

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### **Purpose:**

To provide the procedures for donning/doffing, cleaning, and storage of elastomeric half-face respirators.

### **Background:**

Respirators have been required to protect the healthcare worker caring for patients with an airborne spread disease such as measles, tuberculosis and chickenpox. SARS CoV-2 is primarily transmitted via droplets, including small particle aerosols. Refer to the PPE policy for procedures that require a filtering face piece respirator (N95, elastomeric, or PAPR).

### **Guidelines:**

1. An elastomeric respirator is issued to an individual for their sole use. This individual will be referred to as the “owner” of the elastomeric throughout this document.
2. YNHHS has 2 different brands of approved elastomeric respirators:
  - a. 3M elastomeric—grey mask with grey rectangular filter cartridges and an optional exhalation valve filters
  - b. Honeywell elastomeric—black mask with circular purple filter cartridges
3. The owner will be fit tested for the specific elastomeric respirator through Occupational Medicine.
4. At the time of fit testing, the owner will be issued the elastomeric respirator, re-useable filters, an exhalation valve filter (for 3M respirators), goggles and a storage bag, as well as instructions for respirator use.
5. The owner will be required to watch a video on the care and disinfection of the elastomeric respirator.
6. The elastomeric respirator is to be disinfected using a disinfectant wipe upon doffing. When indicated, the elastomeric respirator is to undergo a more thorough disinfection and inspection as outlined below.
7. The elastomeric respirator is to be inspected for crack, tears, dirt, fatigue prior to use every day. If any damage is noted or the device is grossly soiled, Materials Management or Occupational Medicine is to be contacted for replacement parts or replacement of the elastomeric respirator.
8. Makeup is not to be worn on parts of the face that come in contact with the elastomeric respirator as it can damage the device.
9. When used in an aseptic environment (e.g., OR, Procedure areas), an exhalation valve filter is required, or a surgical mask must be worn over the front of the mask to prevent exhalation into the sterile field.

## Standard Operating Procedure:

### Donning

1. Perform hand hygiene
- 2. Inspect your mask at the beginning of every shift**
  - a. Ensure all parts of the mask are present, not defective or misshapen
  - b. If the internal valves or washers are not in place the mask will not provide adequate air filtration
  - c. Ensure the external exhalation valve filter 3M model number 604 is in place
3. Place the respirator over your mouth and nose
4. Pull the head harness over the crown of your head
5. Position respirator on the bridge of your nose for optimal seal, comfort, and visibility
6. Connect the bottom straps at the back of the neck
7. Adjust top and bottom straps for comfort
- 8. Perform a seal check after each application prior to patient care**
  - a. Perform a positive pressure user seal check before EACH use (3M, Honeywell)
    - i. Place palm over exhalation cover and exhale gently
    - ii. If the face piece bulges slightly and no air leak is detected between the face piece and facial skin, you have a proper seal
      1. If you detect a leak, reposition and/or readjust straps and repeat user seal check
      2. If you still detect a leak, do not use for patient care activities that require the use of a respirator. See your supervisor for another respirator
  - b. Perform a negative pressure user seal check before EACH use
    - i. Honeywell Respiratory (black mask)
      1. Place palm of hands over filters to obstruct airflow through filter and inhale
    - ii. If the face piece caves in slightly and no air leak is detected between the face piece and facial skin, you have a proper seal
      - a. If you detect a leak, reposition and/or readjust straps and repeat user seal check
      - b. If you still detect a leak, do not use for patient care activities that require the use of a respirator. See your supervisor for another respirator
    - iii. 3M Respirator (gray elastomeric mask)
      1. Clasp both filters in palms, wrapping fingers around to posterior part of cartridge. Squeeze filters into palms, and inhale gently.
      2. If the face piece caves in slightly and no air leak is detected between the face piece and facial skin, you have a proper seal
        - a. If you detect a leak, reposition and/or readjust straps and repeat user seal check
        - b. If you still detect a leak, do not use for patient care activities that require the use of a respirator. See your supervisor for another respirator
  9. Breathe normally and remember you may have to speak louder than usual to be heard through the respirator
  10. Perform hand hygiene

### Doffing Sequence with Intermittent Cleaning and Disinfection-3M and Honeywell

1. After use and prior to removal of the elastomeric from the owner's face, perform hand hygiene, don clean gloves and obtain disinfecting wipes
2. Remove safety goggles
3. Thoroughly wipe all components of the safety goggles, including the straps.
4. Unhook elastomeric respirator straps from around your neck
5. Grasp the face piece with one hand and pull head harness from your head
6. Thoroughly wipe all component of the face piece, inside and outside, including the head straps, being careful not to get any liquid onto the filters
7. Doff gloves and perform hand hygiene
8. Allow the sanitized equipment to dry
9. Store in the provided bag

### 3M 6000 Series - Thorough disinfection and inspection process (see instruction video)

1. Identify an appropriate space for disinfecting.
2. After use and prior to removal of the elastomeric respirator from the owner's face, don clean gloves and obtain clean paper towels and disinfecting wipes.
3. Place paper towels on surface that will be used during disinfection process.
4. Unlock the 2 gray inhalation filters from the outside by turning them to the left. Examine for cracking or distortion. Wipe the plastic exterior with disinfectant wipes, ensuring the filter material does not get wet, and place the filters on clean paper towel to air dry.
5. If attached, remove the exhalation valve filter 3M model 604 from the exhalation valve. Examine for cracking or distortion. Carefully wipe the plastic surface with the disinfectant wipes, ensuring the filter material does not get wet, and place on clean paper towel to air dry.
6. Unclip the headpiece straps and remove by pulling the cover off the exhalation valve. Inspect to ensure the straps are intact and have good elasticity and there is no cracking or distortion to the plastic. Wipe all parts of the head piece with disinfectant wipes and place on clean paper towel to air dry.
7. Remove the 2 orange washers from the inhalation filter area. Inspect for signs of distortion, cracking or tearing. Disinfect and place on clean paper towel to dry.
8. On the inside of the face piece, remove the 2 white inhalation valve diaphragms.
9. On the outside of the face piece remove the 1 blue diaphragm. Inspect for signs of distortion, cracking or tearing. Disinfect and place on clean paper towel to dry.
10. Thoroughly wipe all parts of the face piece, inside and out. Place on clean paper towel to dry.
11. Doff gloves and perform hand hygiene
12. When dry, reassemble:
  - a. On inside, attach the 2 white inhalation valves to the inhalation valve area
  - b. On the outside:
    - i. Replace blue diaphragm
    - ii. Place the 2 orange washers on the inhalation valve area
    - iii. Attach the head piece by pressing the cover of the exhalation valve in place then the 2 clips for the head piece
    - iv. Replace the 2 inhalation filters by aligning tabs and turning filter counter-clockwise
13. Store in the provided bag

## Honeywell 7700 - Thorough disinfection and inspection process

1. Identify an appropriate space for disinfecting at the end of your shift.
2. After use and prior to removal of the elastomeric from the owner's face, perform hand hygiene, don clean gloves and obtain clean paper towels and disinfecting wipes.
3. Place paper towels on surface that will be used during disinfection process.
4. When disassembling, check the face piece for cracks, tears and dirt.
5. Unscrew the 2 purple inhalation filters from the outside by turning them to the left. Examine for signs of distortion, cracking or tearing. Wipe with disinfectant wipes, ensuring the filter material does not get wet, and place on clean paper towel to air dry.
6. Remove the straps by unclipping from the front of the mask. Inspect to ensure the straps are intact and have good elasticity. Wipe all straps disinfectant wipes and place them aside in the clean space.
7. Gently remove the inside black inhalation diaphragms. Examine for cracking or distortion. Disinfect and place on clean paper towel to dry.
8. Remove the cover of the exhalation valve (use tabs to pop off). Examine for cracking or distortion. Disinfect and place on clean paper towel to dry.
9. Remove the orange diaphragm from the exhalation valve. Inspect for signs of distortion, cracking or tearing. Disinfect and place on clean paper towel to dry.
10. Thoroughly wipe all parts of the face piece, inside and out. Place on clean paper towel to dry.
11. Doff gloves and perform hand hygiene
12. When dry, reassemble.
  - a. On inside attach both black inhalation diaphragms
  - b. On the outside:
    - i. Attach the head piece noting wording indicating "TOP" and "THIS SIDE OUT"
    - ii. Insert the orange diaphragm and press on cover
    - iii. Screw on purple inhalation filters
13. Store in the provided bag.

## Storage

1. Store your respirator in a clean, cool environment, in the provided bag.
2. You may store with the filters either on or off of the face piece

## Training Videos\*

\* The exhalation valve filter 604 is **NOT** included as part of the training videos

Elastomeric Respirators - [https://youtu.be/BNVXA\\_kagcc](https://youtu.be/BNVXA_kagcc)



Thorough Cleaning - <https://youtu.be/98jkKYeEDcY>



## Replacement

1. Defective masks and filters must be replaced
  - a. See your supervisor for the replacement practice in your area
  - b. Filters must be replaced every year unless submerged in water or otherwise not functional
2. Replacement infor (Lawson) numbers – see below

### 3M Respirators

220640 – Small

220641 – Medium

220642 – Large



220643 – Inhalation Filter (gray)



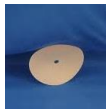
223164 – Inhalation Gasket (orange washer)



223315 – Head Harness



223172 – Inhalation Valve (white)



223183 – Exhalation Valve (blue)



224782 – Exhalation Valve Filter 604



### Honeywell Respirators

220459 – Small

220460 – Medium

220461 – Large

220462 – Inhalation Filter (purple)



### References:

1. Subhash SS, et al. Effectiveness of common healthcare disinfectants against H1N1 influenza virus on reusable elastomeric respirators. Infect Control Hosp Epidemiol. 2014 Jul;35(7):894-7.
2. Honeywell IFUs
3. 3M IFUs
4. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/elastomeric-respirators-strategy/index.html>
5. CDC.gov