

# COVID-19

## What is it and how is it spread?

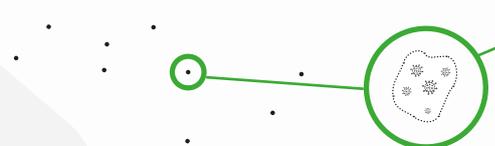
**COVID-19 is an emerging disease** and there is more to learn about its transmissibility, severity, and other features. Check the WHO and other relevant authorities to keep abreast with the latest information and warnings.

### COVID-19 is a respiratory disease.

Much of what is currently known about the coronavirus (SARS-CoV-2) and how it spreads is based on what we know about similar viruses.

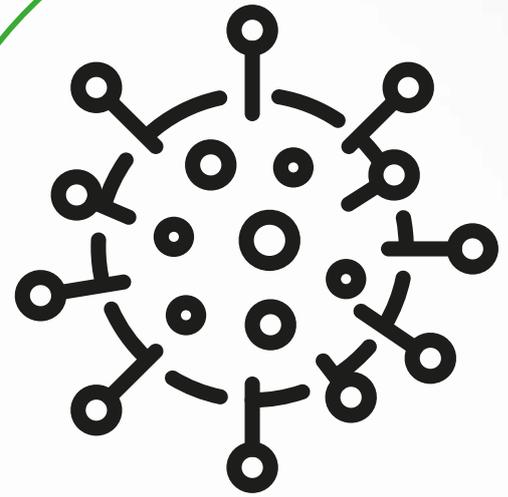
#### THE MAIN DISTRIBUTION IS AIRBORNE

Viruses typically attach to larger particles when airborne. These nuclei-microscopic particles are produced when an infected person coughs, sneezes, shouts, or sings.



#### PARTICLES CARRY THE VIRUS

Leftover particles of evaporated droplets carrying the virus can be **less than 5 µm** in size.



#### THE SIZE OF THE VIRUS

ranges just **>0.005 - 0.05 µm** in size.

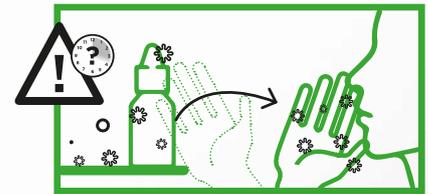
### How does SARS-CoV-2 spread?\*



**AIRBORNE TRANSMISSION** i.e. coughing, sneezing, shouting, or singing



**PERSON-TO-PERSON** i.e. handshakes and hugging



**SURFACES AND FOMITES** i.e. door knobs and coffee machines



#### HOW LONG DOES THE VIRUS SURVIVE OUTSIDE OF THE HUMAN BODY?

Droplet nuclei can remain suspended **in the air for prolonged periods** of time and can be **carried great distances** on air currents. It is not yet known how long SARS-CoV-2 can **survive on surfaces**, but it seems to behave like other coronaviruses – which can persist for a **few hours to several days**.

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## What can you do?

**WE CAN ASSIST YOU**  
MANN+HUMMEL have experienced staff and a complete offering of filtration products and services to assist in implementing your prevention strategy.

**Personal hygiene and distance (>2 m) from sick people is important, but an effective prevention strategy should include several or all of the following:**



### USE HEPA FILTRATION TO CATCH ALL AIRBORNE DROPLET NUCLEI

- HEPA filters are tested and rated by their performance at retaining particles at the most penetrating particle size (MPPS) i.e. 99.95% for H13 HEPA's and 99.995% for H14 acc. to EN 1822.
- This means that HEPA filters will remove any solid or liquid particle from the air with an efficiency of at least 99.95 %
- Viruses like SARS-CoV-2 also often attach themselves to larger particles well within the focus of HEPA filters.
- **HEPA filtration should be a key part of your infection control strategy** if it's appropriate to your building.



### USE PORTABLE AIR CLEANERS

- Additional air cleaning capabilities for buildings without any high efficiency filtration system
- Low quality air cleaners can do more harm than good by creating a turbulent air flow while contributing little cleaning power
- Dilution with fresh air should still be prioritized
- Place the device as close as possible to your location, so you breathe the actual filtered air. The larger the distance to the AP, the higher the chance to inhale swirling contaminants which could include viruses.
- Activated carbon stage can remove hazardous gases released by cleaning agents (avoiding side effects from additional cleaning activity).



### INCREASE EFFICIENCY WITHOUT SACRIFICING AIR FLOW

- Increasing dilution with fresh outside air is most important
- Use the same filter classes as generally recommended (e.g. at least ISO ePM1 50% with an ISO ePM10 pre-filter stage)
- Maintain normal filter change intervals
- Disable air re-circulation entirely or reduce it to a minimum
- If necessary increase fresh air dilution by frequently opening windows
- Higher energy consumption should not be the main concern during these times



### PERSONAL PROTECTIVE EQUIPMENT

for healthcare and maintenance workers i.e. glasses, gloves, respirators, masks and clothing



### ISOLATION ROOMS

In healthcare facilities, suspected or confirmed coronavirus patients should be placed in **airborne infection isolation rooms with a negative pressure** and appropriate HEPA or above filtration on the recirculation or exhaust air flows.



### CONTROL AIR-FLOW PATTERNS

move droplet nuclei out of breathing zones



### IDENTIFY POSSIBLE EXHAUST RE-ENTRAINMENT

of contaminated air i.e. exhaust too close to HVAC air intakes



### FILTER MAINTENANCE AND REMOVAL

Check that all filters are operating effectively. And, when it's time to change filters, take care not to release any viruses that have collected on the filter media into the internal environment – remembering that SARS-CoV-2 can survive for up to several days on surfaces. Dispose of any contaminated waste according to the guidelines in your location.