# Installation instructions for MultiChiller

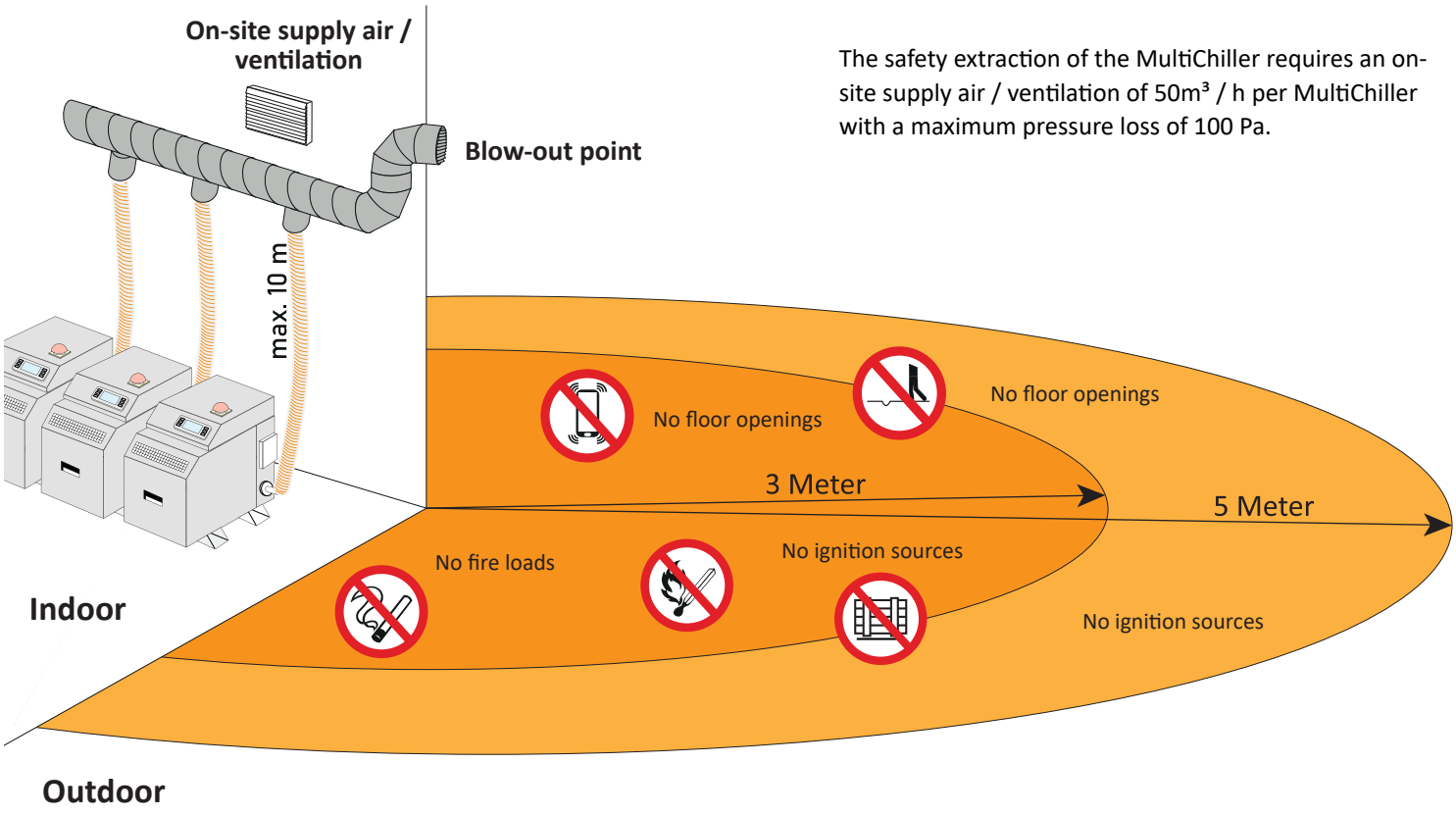
The following text contains information about the requirements for installing our MultiChiller with flammable refrigerants. This ensures operational safety on site.

The MultiChiller is designed for indoor installation. The entire refrigeration circuit is in a ventilated housing (according to DIN EN 378-1). The system is designed to be technically watertight in the long term. The housing is sufficiently mechanically ventilated so that no potentially explosive atmosphere can arise in the event of a possible leak. No division into zones is necessary.

Further information in the operating instructions: Analysis and assessment of the dangers and risks.

The refrigerants R290, R1270, R600 and R600a are heavier than air. The MultiChiller safety exhaust must be connected to an antistatic hose with a max. Length of 10 m connected and led outside. Larger lengths require recalculation and, if necessary, support through a ventilation duct. The following information and the illustration must be observed for the blow-out point.
The operator is responsible for checking the local conditions during installation:

- Floor inlets, ventilation openings, floor flaps or similar openings in the immediate vicinity of the blow-out point must not be present. We recommend a distance of at least 5 m.
- Heels and depressions in which leaked refrigerant can collect are not permitted.
- Persons should not remain in a refrigeration systems room. This may only be entered by trained personnel.
- Refrigerant escaping must not enter adjacent areas through openings (e.g. ventilation openings for fresh air, door openings, etc.). Air routing/ventilation through the installation room into a staff lounge area is not permitted.
- Adequate ventilation in the form of mechanical ventilation or a sufficiently large area to the outside must be provided for the machine room. In the case of mechanical ventilation, the supply and exhaust air must be separated sufficiently from one another so that no exhaust air can be sucked in and the installation room is evenly ventilated.
- No ignition sources must be present at the outlet point of the MultiChiller extraction unit.
- Adequate ventilation must be provided for hot work such as welding or soldering




The safety extraction of the MultiChiller requires an on-site supply air / ventilation of 50m³ / h per MultiChiller with a maximum pressure loss of 100 Pa.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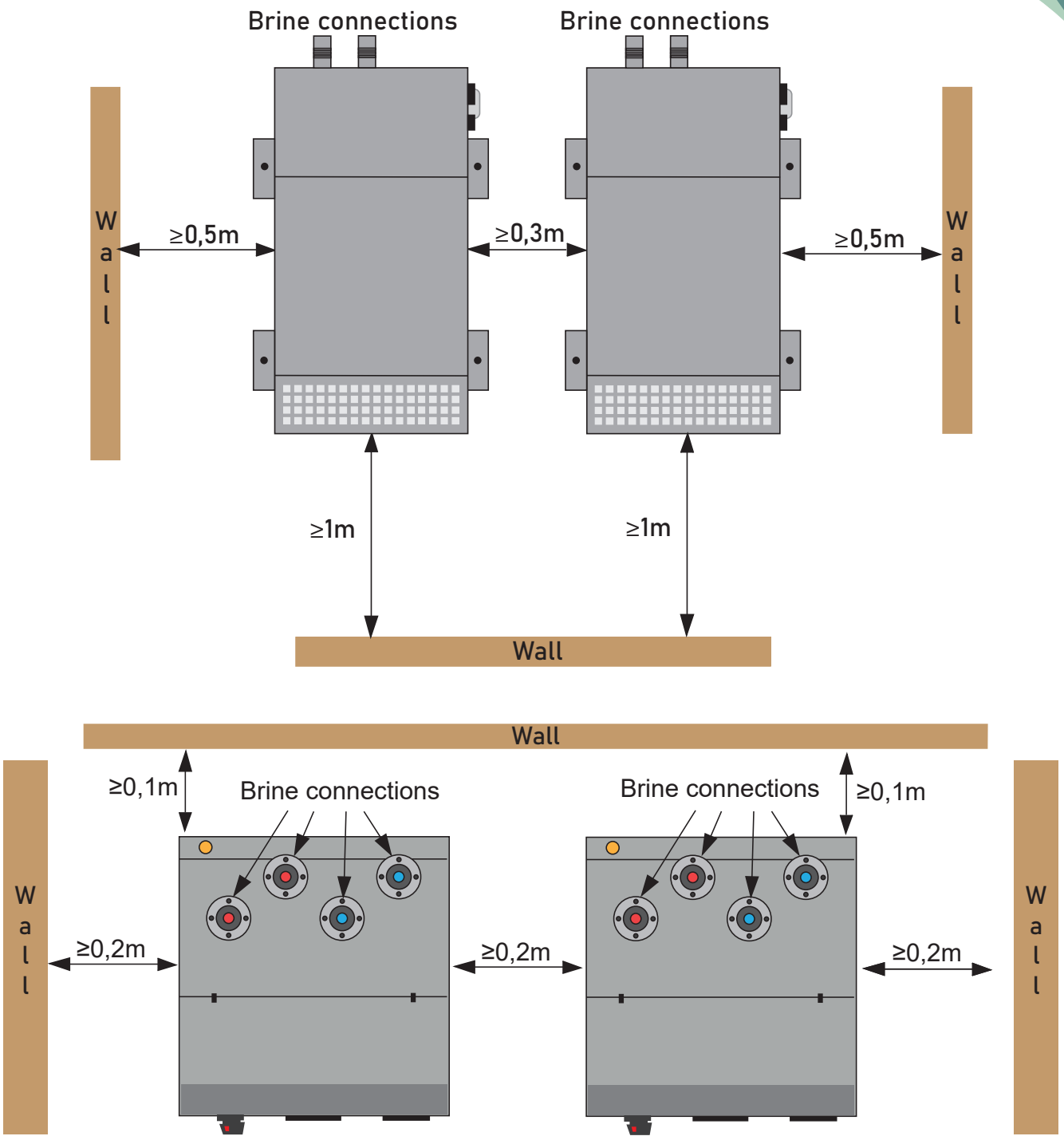



Smoking and open fire around the blow-out point are not permitted. No ignition sources may be present. The limit values specified in the table below must not be exceeded.

Maximum permissible surface temperatures and concentrations of refrigerants

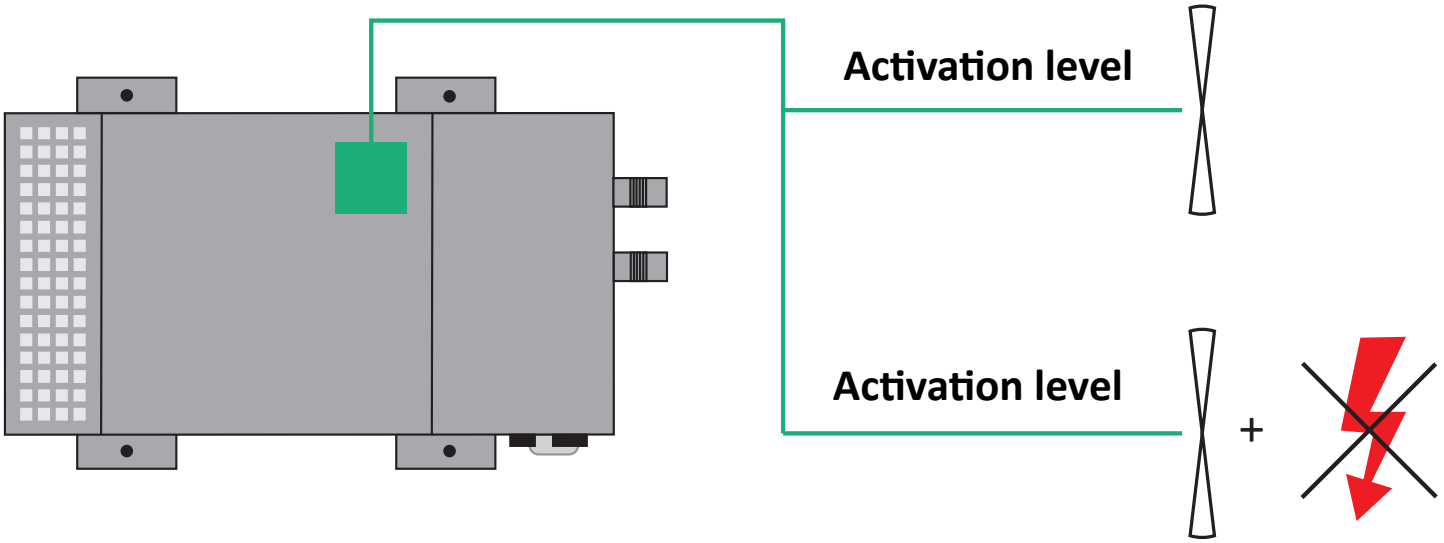
| **Refrigerants** | **Maximum surface temperatures** (°C) | **Maximum refrigerant concentrations at potential ignition sources** (kg/m³) |
|---|---|---|
| R290 | 370 | 0,019 |
| R1270 | 355 | 0,023 |
| R600 | 265 | 0,019 |
| R600a | 360 | 0,0215 |

The following security systems are used:

- Two-stage ATEXgas sensor for the flammable refrigerant and fan for delivering flammable gas to the outside as soon as a concentration in the housing of 2000 ppm is exceeded. Safe derivation must be possible.
- https://www.esders.de/2019/09/ueg-versus-ppm/

ATEX gas sensor setting MultiChiller

| Switch-on levels | Action | Recommended set-ting of the ATEX-gas sensor |
|---|---|---|
| 1 | The fan conveys any escaping refrigerant to the outside safely and switches the fan off when the set value is undershot. Device remains active. | 2000 |
| 2 | The chiller is switched off. The fan conveys any escaping refri-gerant to the outside safely. After the value falls below the set value, the electrical voltage is again applied to the MultiChiller. However, the MultiChiller must be enabled manually. The ATEX gas sensor always remains active. | 4000 |




The MultiChiller is to be regarded as „Live“ even if the gas sensor is triggered!

*Should there be any unanswered questions, please contact Futron GmbH Tel.-No.: +49 (0) 37 65 / 38 03 - 0.*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