

These General Conditions define the basic rules for proper use of Piller fans. Specifications regarding the correct use contained in the product-specific operating instructions apply in addition to the conditions indicated here.

The conditions are as follows: (for current changes see ^{yy})

- All maintenance instructions must be observed.
- ^{yy}All safety systems and guards (movable and fixed) must be installed correctly. The safety function signals (SIL) must be processed in the customer's system control as indicated by the specifications in the operating instructions. This is especially important for fixed safety systems and guards. This applies in particular to interlinked machines that work in series.^{yy}
- ^{yy}The manufacturer's settings must not be changed without its prior approval. The approval must be given in writing. Emergency mode in particular must be agreed with the manufacturer on an individual basis and approved in writing by the manufacturer. Such an emergency mode always means a limitation to the warranty, which must be determined during approval.^{yy}
- Only the lubricants specified by the manufacturer or equivalent lubricants may be used. Contaminations are prohibited.
- If machines are installed permanently, the foundation must be laid in a technically correct manner while taking into account DIN 4024, Part 2. The machine must be fastened as per the manufacturer's recommendations.
- Reactive forces due to pipeline connections must be kept to a minimum – by using compensators, for example. If maximum connecting pieces loads are specified on the dimension sheet, these must not be exceeded under any circumstances.
- No liability is accepted for faults caused by improper commissioning by the customer/operator.
- It is prohibited to exceed the maximum permitted temperatures and speeds specified in the operating instructions, even for a short time.
- It is not permitted to allow foreign bodies to enter the impeller. A foreign body is any body that does not correspond to the correct use or the medium specified for the correct use.
- Only the substances (gas compositions) specified on the machine data sheet may be conveyed. The warranty agreement does not cover any damage due to non-specified composition of the conveyed medium.
- The fans may only be operated if they function smoothly. The permitted bearing vibration levels are defined by the alarm and overload settings specified in the operating instructions.
- If fans feature vibration monitoring, the alarm and switch-off functions must be implemented using the limit values specified in the operating instructions. Operating the fans beyond the alarm limit is only permitted for a short time to analyze (troubleshoot) the cause of vibrations. Sudden deteriorations in vibration levels may signal a failure in the machine or a machine part and may put operational reliability at risk. The causes must be determined immediately and corrective action taken.
- The correct use of a fan comprises producing a defined head for a specified medium. This head is usually produced by friction and divert work due to system components. There is a risk that the impeller will be driven and accelerated to impermissible high speeds in applications where there can be a suction- or pressure-side flow through the fan or a multi-stage fan arrangement in the system. This will cause the impeller to burst and pose a life-threatening hazard. In such applications/systems, a potential backflow through the fan must be reliably prevented by installing tight check valves on the system side or using other equivalent system measures. The fan must not be put into operation if a potential backflow cannot be reliably prevented on the system side. Please contact the manufacturer if this is the case
- Operating fans without vibration monitoring is only permitted if the vibration levels do not exceed the limits specified in the operating instructions. If specifications are not available/provided:
 - 7.1 mm/s in a rigid installation in accordance with ISO 14694 BV-3;
 - 4.5 mm/s in a rigid installation in accordance with ISO 14694 BV-4
- You must consult the manufacturer before making any modifications to the impellers during operational balancing performed by the customer. Unauthorized measures will void the warranty.
- System-related spinning of the gas flow in the impeller's direction of rotation must be avoided; counter-spinning is not permitted.
- Continuous operation is only permitted for the operating points specified in the operating instructions; in particular, operation with a closed slide valve or closed throttle is only permitted for short periods (max. 5 min to help start-up).
- In the case of fans with an inlet guide vane, all inlet guide vane positions are approved for operation with the exception of a closed inlet guide vane (90° or 0°). Operation with a closed inlet guide vane is only permitted during start-up. Open the inlet guide vane quickly after the final rotation speed is reached. In applications with pressure increases greater than 10kPa, permitted inlet guide vane settings must be limited to a max. of 70° in continuous operation.
- The flow rate must never fall below a minimum of $V_{min} = 0,3 \cdot q_{Vopt}$ in continuous operation; at pressure increases greater than 20 kPa, the minimum flow rate must be increased to $0,5 \cdot q_{Vopt}$ and operating points with pressure increases less than 40% of the pressure increase at the design point must be blocked.
- The maximum number of startup and shutdown processes is limited due to the individual low-cycle fatigues of the materials used. The limits to be observed for the corresponding machine are defined in the specific operating instructions. These limits must not be exceeded!
- Inflow to the fan must not be interrupted during free intake. The minimum dimensions for the interference-free rectangular space around the center of the intake opening is $a = b = 2,5 \cdot d$ (d = intake diameter).
- Heavier caking, corrosion or visible wear on impellers is not permitted. The manufacturer must be consulted to agree on measures to prevent this happening without delay.
- Liquid surging into the impeller and inadequate condensate removal from the fan casing must be avoided under all circumstances.
- If the customer supplies the motor, the manufacturer does not provide a warranty for design and function, nor for the operational reliability of the coupling in the event of electrical faults (as per VDI 3840).
- The fans may only be started up when the machine is at a standstill.
- The fan must not come to a standstill at process temperatures above 150°C as this could damage the bearing.
- Temperature gradients of more than 50 °C/min are not permitted unless specified otherwise in the operating instructions.
- If fans are operated in parallel, operation must be blocked to the left of the peak in the characteristic curve.

Fans in evaporation systems

- It is essential to keep the liquid phase in vapors to a minimum to protect the impellers. The maximum permissible droplet size is approx. 1 mm.
- Injecting water to recool overheating is permitted up to saturated vapor conditions on the pressure side.
- The pipe routing must be designed in such a way that no puddles of water can form and long pipe sections with marked differences in height are avoided upstream and downstream of the fan.
- Buffer fluids for the shaft seal must be clean and correctly connected.