LILLNORD

next generation cooling technologies

# PG1000 / FR / KR / R

# MaryLine / MiniRasker

## A word about

## Water Quality

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The mode of operation of Lillnord PG steam humidifiers is based on the fact that water contains minerals and is therefore conductive.

- "normal" tap water is ideal.
- but what is "normal" tap water exactly?

Users of Lillnord units in the most diverse areas consider their tap water "normal."

Lillnord typically defines "normal" as feed water with conductivity between 200 and 800 µS/cm (micro Siemens per centimeter) at 15° C.

Some areas, however, are supplied with tap water whose quality is outside the parameters specified by Lillnord. If the Lillnord steam humidifier's control is not adjusted correctly in these areas, the unit cannot perform optimally. For example, the electrodes could wear out particularly quickly or the steam production could be too low or the water overflows.

The operational parameters set by Lillnord units in the factory are intended for normal tap water. However, they can very easily be reprogrammed to fit the special requirements of a particular area. In addition, it is possible to install a special electrode in the PG steam cylinder in order to increase the life span of the electrodes or increase the amount of steam.

**Because of this you should monitor your new unit during initial operation. Make sure that it has been properly installed and is operating to your satisfaction.**

Consult your Lillnord specialists. We will test the quality of your water and advise you on installation and initial operation. Your Lillnord unit will be carefully adapted to your particular application.

## Operation with Softened Water

**Warning:** Unless special measures are taken, feeding softened water into the Lillnord PG steam humidifier is dangerous. It can cause

- unacceptably high conductivity
- the formation of salt bridges between the electrodes and the electrode leads on the inner surface of the top part of the steam cylinder
- foaming in the steam cylinder

Salt bridges cause electrical arcs. The top part must be replaced to special electrode to prevent further damage to the cylinder material, as well as short circuits

**Note:** Please contact Lillnord if you wish to operate the unit with softened water.

If using a water softening system, we recommend diluting the softened water with normal tap water to produce an overall hardness between 4-8°dH. This value can be set lower if the water does not foam.

When blending softened water with deionized water (conductivity = 5-20 µS/cm) it is to ensure that the mixture neither foams nor is too low in conductivity.

When feed water contains softened water, the level of conductivity is typically higher at operating temperature. Install a Lillnord special electrode with anti-magnetic nickel “star electrode” to extend the service life of the electrodes.

| | **Conductivity:** | **Voltage:** | **Electrode distance:** |
|---|---|---|---|
| | | | |
| PG1000 / FR / KR / R | 200..800 µS/cm | 3x400/230 V | 30 mm |
| PG1000 / FR / KR / R | 50..200 µS/cm | 3x400/230 V | 10 mm |
| | | | |
| PG1000 / FR / KR / R | 200..800 µS/cm | 3x230 V | 30 mm |
| PG1000 / FR / KR / R | 100..200 µS/cm | 3x230 V | 10 mm |
| PG1000 / FR / KR / R | 50..100 µS/cm | 3x230 V | Z / 5 mm |
| | | | |
| MaryLine / MiniRasker | 200..800 µS/cm | 3x400/230 V | 20 mm |
| MaryLine / MiniRasker | 50..200 µS/cm | 3x400/230 V | 10 mm |
| | | | |
| MaryLine / MiniRasker | 200..800 µS/cm | 3x230 V | 20 mm |
| MaryLine / MiniRasker | 100..800 µS/cm | 3x230 V | 10 mm |

## Water Installation

Use feed water without chemical additives and with conductivity between 200 and 800 µS/cm only. Above conductivity levels of 800 µS/cm to a maximum of 1250 µS/cm and below conductivity levels of 200 µS/cm to a minimum of 125 µS/cm, special adjustments are required.
In this case, please contact Lillnord

- The water supply temperature may not exceed 40° C.
- Water pressure normal 3-4 bar

**Warning, Hazardous Voltage:** All work to be performed by trained personnel only. All electrical installation and servicing of the electrical components of this unit to be performed by qualified electricians only.

Disconnect power supply before installation and services

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