

THE SILICA GEL-ROTOR

from Seibu Giken

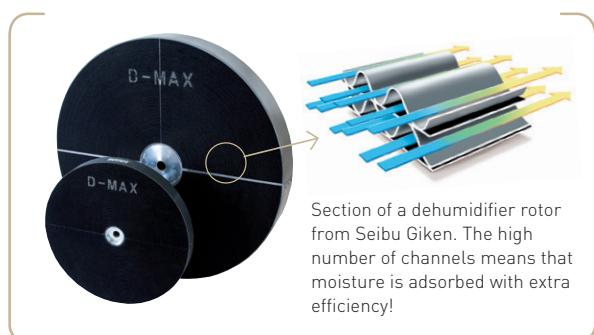
All DST desiccant dehumidifiers use the Seibu Giken Silica Gel Rotor. In the Seibu Giken rotor the silica gel is chemically bonded to the structure, which means that there is no desiccant carry-over to the air. It also means an excellent lifetime. After 10 years of operation the Seibu Giken rotor retains more than 90% of its original capacity. Another important feature is that the Seibu Giken rotor can be washed if it becomes contaminated. This is especially important for rotors working under harsh conditions.

Seibu Giken was the first company to develop a silica gel rotor and is still the technology leader.

Tests carried out by the well-known Fraunhofer Institute show that no dust is carried over to the dry air in a Seibu Giken rotor. Tests on DST dehumidifiers placed in sewage stations have also shown that the rotor is bacteriostatic.

The adsorption rotor is manufactured from alternate layers of flat and corrugated sheets, impregnated with an active component called desiccant. It is made to form a vast number of axial air channels running parallel through the structure. As the air passes through the channels it is dried.

The rotor is the most important part of the dehumidifier. It is the rotor that determines the capacity and the lifetime of the unit. Hence you want a dependable, stable and efficient rotor. The following things are important to consider when choosing.



1. The desiccant material

Back in the fifties, when the desiccant rotor dehumidifier was invented, lithium chloride salt was used as the desiccant. Lithium chloride absorbs the moisture through a chemical reaction. The disadvantage of a salt impregnated rotor is that it can't withstand high humidity. Saturated air will cause the salt to partially leave the rotor and thereby decrease the capacity and cause corrosion of the dehumidifier. Today more and more dehumidifiers use silica gel rotors. The silica gel adsorbs the moisture, the water molecules adhere to the surface of the silica gel. The advantage is that it can withstand saturated air and, if the silica gel is chemically bonded to the rotor, it has a very long lifetime, up to ten years if taken well care of.

2. Will there be dust from the rotor?

Both lithium chloride and silica gel rotors containing loose desiccant will cause some dust to leave the rotor with the dry air. Apart from possible damage of dried materials the capacity of the rotor will deteriorate. Only rotors with chemically bonded silica gel will have no desiccant carry-over to the dry air.

3. Washability

If the rotor is contaminated by accident or used in applications with contaminated air, for example oil mist, it is important that the rotor is washable, and that you can wash it yourself! Having to leave the rotor away for washing is costly and causes a longer downtime.

4. Bacterial growth

Tests on a silica gel rotor used in a water sewage plant shows no bacteria formation on the rotor. This is thanks to the high temperature (above 120°C) when regenerating the rotor and to the low relative humidity in the dry air.



The D-Max rotor

D-Max is the next generation of silica gel rotors from Seibu Giken and is a development from the SSCR-U. The silica gel is still chemically bonded to the structure, which means that there is no desiccant carry-over to the air and this also gives an excellent lifetime. The D-Max rotor can be washed if it becomes contaminated. A new feature with the D-Max rotor is that it is bacteriostatic and fungistatic which means there will be no growth of bacteria or fungus on a D-Max rotor. Still, it is only the D-Max H that is bactericidal, which means that the D-Max H rotor actually eliminates bacteria.



D-Max CI, 100 % silicon free

D-Max CI regulates humidity without spreading any silicon in the air at all. The unique D-Max CI rotor is a 100% silicon-free sorption rotor which maintains full dehumidification capacity. For the automotive industry, pharmaceutical industry and other environments which demands silicon-free ambient air. Thanks to thorough research, Seibu Giken has managed to produce the only 100% silicon free rotor on the market, D-Max CI is available only from Seibu Giken DST.



The D-Max H rotor

The D-Max H rotor is bactericidal and hygienic, which makes it especially suitable for dehumidification within food- and pharmaceutical industry. The D-Max H can be installed in a new or existing rotor-unit from Seibu Giken DST. The rotor surface effectively eliminates airborne bacteria. It was successfully tested in the Japan Food Research Laboratories in 2001.



The SZCR rotor Zeolite rotor

This Zeolite rotor from Seibu Giken is developed for dehumidification at low dew points. The SZCR is a highly efficient desiccant rotor.