

PERMOX® - CB630 Stainless Steel-Diffuser

for coarse bubble diffusion of liquids

INSTALLATION, OPERATING and MAINTENANCE INSTRUCTIONS

The PERMOX® CB630 stainless steel coarse bubble diffuser is the ideal choice for mixing purpose in aerobic digesters, equalization tanks and grit & grease removal chambers. But this diffuser can even be used for oxygen transfer in aeration tanks with critical waste water.



The material used for PERMOX® CB630 is stainless steel AISI316.

The aeration part contains an air reservoir and is perforated with air holes of various sizes. The air holes are symmetrically arranged in three horizontal rows, on the vertical surfaces on each side of the diffuser. The bottom component is a deflector plate that prevents solids from entering the air diffuser.

The strong 1" conical male connection thread is integrated part of cast end cap.

Standard air volume flow range is 15-90 Nm³/h per PERMOX® CB630. By special design, smaller air volume flows can be realized dependent on application.

In order to prevent waste water entering into the diffuser and aeration grids, it is essential that there is no pressure decrease in the aeration grids when the blower(s) are not operating..

INSTALLATION INSTRUCTIONS

The distance between the diffusers on the distribution pipe (connection hole axis) should be at least 180 mm and must not exceed 1,000 mm (differences possible on request).

Storage

Store the diffusers in their packaging in a dry and ventilated room.

Preparation

Before installing PERMOX® CB630 it is important to ensure that the pipelines are clean. All drill chips, dirt, etc. must be removed, otherwise they will be carried into the diffuser when the blower is started and could cause significant deterioration or damage.

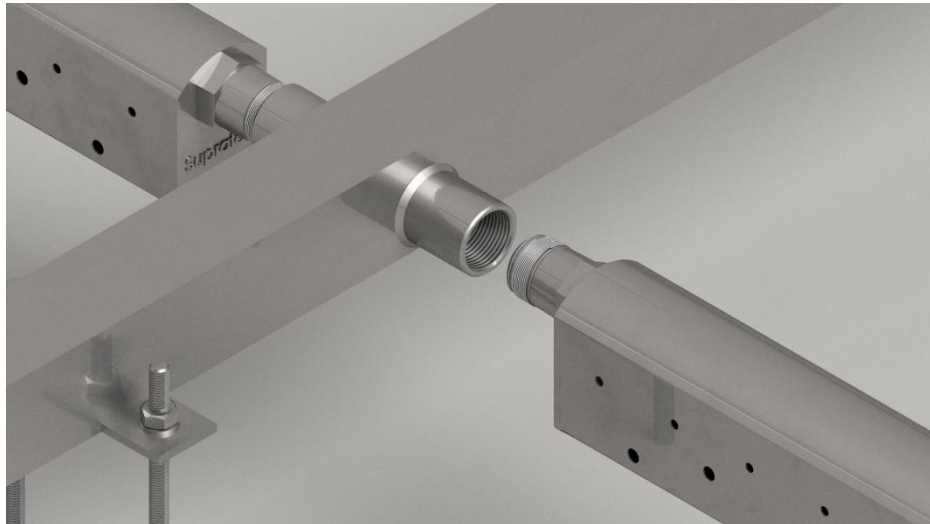
Levelling

The PERMOX® CB630 is mounted on distribution pipes with 1" nozzles.

The distribution pipes must be levelled within ± 10 mm.

Installation on square pipes by welded nozzles

The connection thread of the PERMOX® CB630 is to be lagged with a sealing cord and the surface of the connection thread must be clean.



The sealed thread of PERMOX® CB630 is to be screwed into the nozzle of the distribution pipe. Always ensure that the diffuser is installed firmly and sealed, with vertical positioned aeration sides.

OPERATING INSTRUCTIONS

Functional and leakage check

Once all the PERMOX® CB630 have been installed, a function and leakage check must be carried out. Fill the tank with clean water to a level of approx. 10 cm above the top of the diffuser. It is recommended to operate with a minimum air flow of e.g. 1Nm³/h per diffuser before the water level reaches the aeration grid, in order to avoid water ingress through some badlysealed pipe connections.

As a visual check, the diffusers are loaded with the specific project design air flow per diffuser.

After ensuring that all diffusers are functioning, the air flow is reduced to 1 Nm³/h per diffuser to simplify the leakage check of the 1"-thread connection of the diffusers. Rising large bubbles at the thread connection indicate leaks, e.g. due to improperly sealed diffusers, which must be remedied.

The successfully performance of the function and leakage check must be documented and the water level raised to at least 100 cm above the top of the diffuser as quickly as possible.

Bubble pattern

The evenness of the aeration (bubble pattern test) should be checked when the tank is filled to a level of approximately 100 cm of water above the top of the diffuser with the specific project design per diffuser.

Oxygen transfer test

Before performing an oxygen transfer test to prove the efficiency of PERMOX® CB630, the above steps must be completed. The oxygen transfer test can be carried out in accordance with the accepted regulations (e.g. DIN EN 12255-15 : 2003 or DWA-M 209) using the clean water or waste water method. Guaranteed values must be strictly adhered to a calibrated and accurate measurement of the air flow is required.

Commissioning

If commissioning is delayed and/or the system is shut down at a later date, it must be ensured that the diffusers are sufficiently covered with water (min. 100 cm) to protect the PERMOX® CB630 from mechanical damage, e.g. by falling objects.

MAINTENANCE INSTRUCTIONS

Depending on the operating conditions, especially if operating air flow is lower than 25 Nm³/h per diffuser, we recommend the appropriate maintenance cycle below. This maintenance cycle is also used to remove deposits after long periods of inactivity.

Maintenance cycle

Any deposits are removed by short-term load. This also prevents any accumulation of biological growth.

When using PERMOX® CB630, we recommend daily but at least weekly maintenance loading with double the design/normal operating flow rate for approx. 15-30 minutes, but not more than 90 Nm³/h per diffuser..

Deviating procedures are possible after consultation with Supratec.

Monitoring

Bubble pattern and pressure loss should be checked and documented at regular intervals under similar operating conditions (e.g. water level and air flow). The development of the pressure loss in a load-dependent, seasonal comparison allows an objective assessment of the condition of the aeration system.

In the event of significant changes in the bubble pattern (e.g. partially massive large bubbles instead of homogeneous bubble pattern) and/or an increase in the pressure loss of the system (by more than 40 hPa compared to commissioning), Supratec should be consulted immediately.

There is a risk of sludge entering the entire pipework system and blocking the homogeneous air distribution in the aeration system, particularly in the case of shut down blowers and decreasing pressure in the aeration system by e.g. leaking valves or gaskets.

Cleaning

The condition of the diffusers must be checked each time the tank is emptied. Particular attention must be paid to any fouling (deposits, sludge, coatings etc.), which can usually be easily removed from the diffuser. Depending on the nature and composition of the fouling, one of the following methods or a combination of several methods may be required. Compatibility tests and successful results must always be carried out first on stainless steel AISI316 (particularly with alkalis and acids). We recommend:

- Manual: Cleaning with water and a soft brush is often sufficient to remove existing deposits.
During manual cleaning, a continuous air flow is required. We recommend to operate each diffuser with 20 Nm³/h.
- Alkaline solutions: Diluted alkaline cleaning agents can usually be used to aid manual cleaning.

We reserve the right to make technical changes without notice.

For current version please check our website www.oxyflex.de.