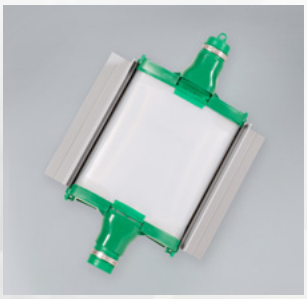
JÄGER
EnviroTech

# WASTE WATER AERATION

# DIFFUSER SELECTION

## THE RIGHT DIFFUSER FOR EVERY APPLICATION

For every application we offer the right tailor-made solution. Whether municipal or industrial systems, at reasonable costs or high efficiency, easy to use or especially for most demanding requirements – every diffuser has a certain field of application.



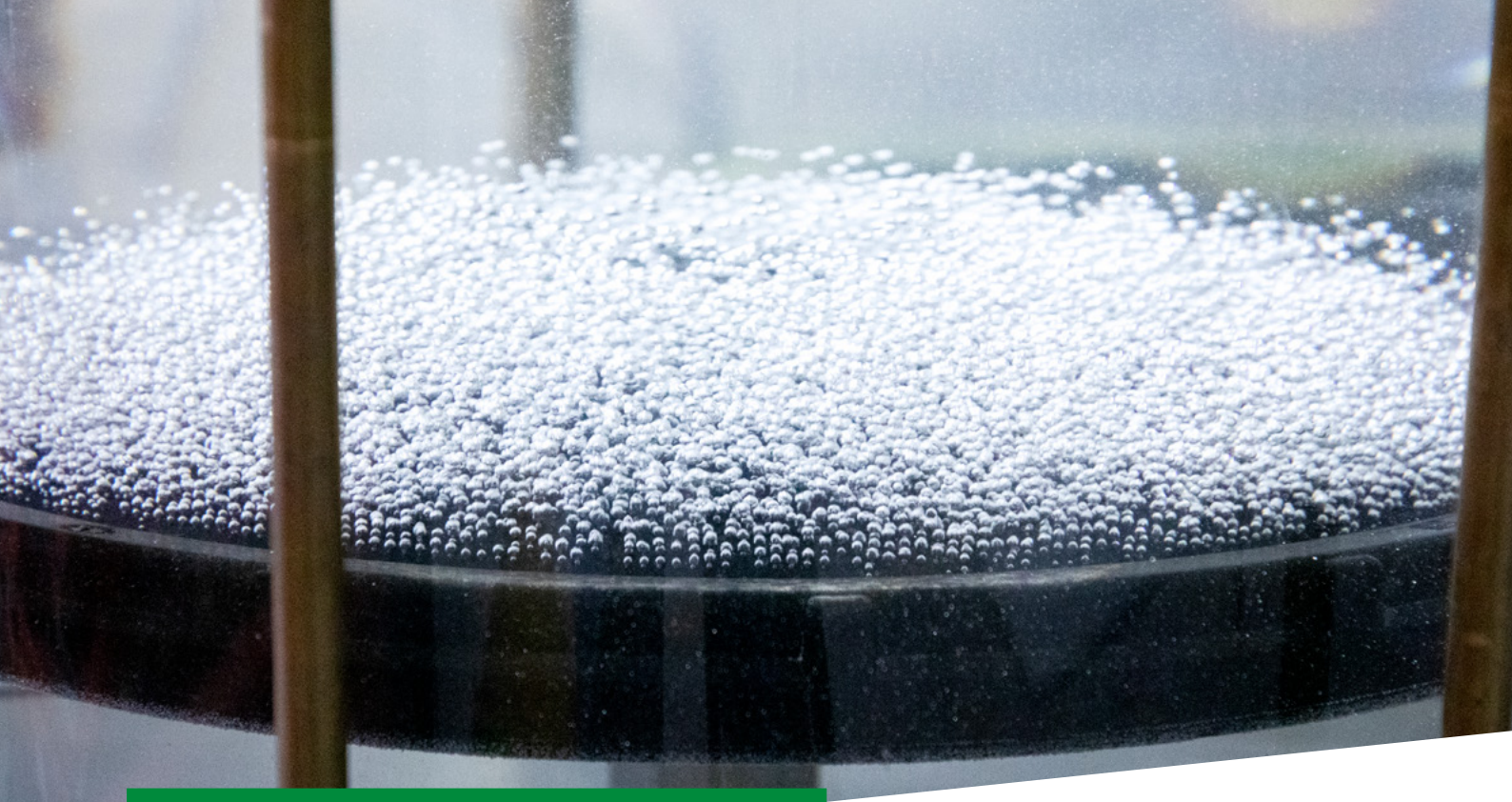
### Requirements for tender compliance

Considering the projects data and the analysis of the requirements profile we generate our offers with regard to:

- **Type of wastewater, waste water constituents, temperature and chemical characteristics**
- **Process engineering: low load / high load, conventionally / fixed bed, activated sludge / turbid water / aerobic stabilization**
- **Specific operational costs: energy costs, maintenance- and service costs**
- **Evaluation of operational safety, different services and service intervals**

The analysis of investment, maintenance and processing costs defines the specific requirements profile for the aeration system and enables the right choice.

Longterm projection of investment costs enables the optimal choice of aeration system inclusive air blower and piping system.

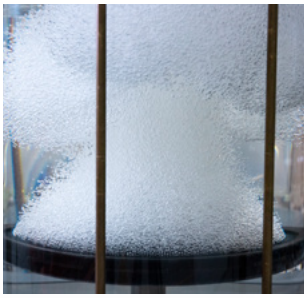


# AERATION SOLUTIONS

## DISC DIFFUSER

### JetFlex® HD disc diffuser (HD-Series)

The Jäger HD disc diffuser series combines cost effective design, low installation and maintenance costs, reliability and performance in intermittent and continuous aeration processes.



### HD disc diffusers additionally offer a wide range of advantages:

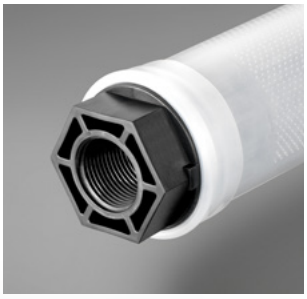
- **Different types of perforations according to the operating conditions**
- **Precise die cut openings for high oxygen transfer efficiency and low head loss**
- **Active diameter from 184 mm to 218 mm over 295 mm**
- **Various standard and special membrane materials:EPDM, Silicone, PUR, NBR and FKM**
- **PTFE coatings possible**
- **Glass fiber reinforced plastics for maximum chemical and thermal resistance**
- **Non-return valve (optionally)**
- **Various connections for plastic and steel tubes due tocomprehensive range of accessories**
- **Standard diffusers available in stock**

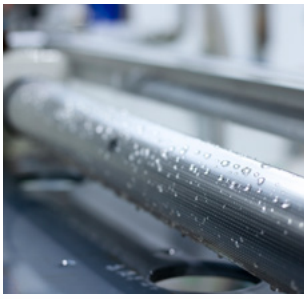
# AERATION SOLUTIONS

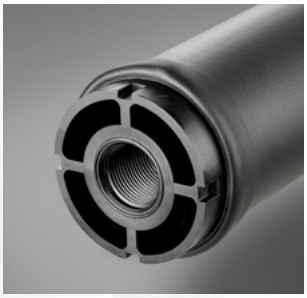
## TUBE DIFFUSER

### JetFlex® TD tube diffuser (TD-Series)

The Jäger TD tube diffuser series also combines cost effective design, low installation and maintenance costs, reliability and performance in intermittent and continuous aeration processes.







### TD tube diffusers additionally offer a wide range of advantages:

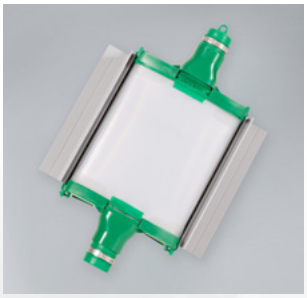
- **Different types of perforations according to the operating conditions**
- **Precise die cut openings for high oxygen transfer efficiency and low head loss**
- **Low head loss due to grooved PP-support tube**
- **Realisation of high diffuser density possible**
- **Active length from 200 – 1200 mm with standard length of 500 mm, 750 mm and 1000 mm**
- **Standard diameter of 65 mm and 90 mm**
- **Mounting resp. assembling possible onto round and square tube headers**
- **Various standard and special membrane materials: EPDM, Silicone, PUR, NBR and FKM**
- **PTFE coatings possible**
- **Versatile connection options for plastic and steel pipe by a comprehensive range of accessories**

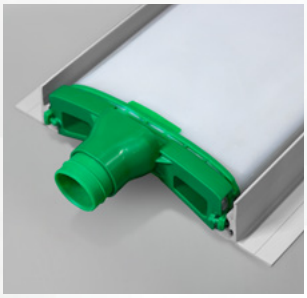
# AERATION SOLUTIONS

## STRIP DIFFUSER

### Jetflex® SSD: The Smart Strip Diffuser

Every diffuser, no matter how good, reaches the end-of-life at some point and must be replaced. It must be replaced at the latest, when the membranes fail mechanically. Up to now, regarding plate and strip diffuser, the entire diffuser was always removed from the basin. Replacing the membranes was not possible with plate and strip diffusers, or could only be done with considerable time expenditure. JÄGER has now solved this problem.





### The flexible membrane

The patented solution is amazingly simple: the membrane is designed as a continuous airtight double membrane and is fitted with an air connection. The air introduced between the membranes can only escape via the microperforation of the upper membrane. As a result, the membrane is completely decoupled from the base structure – a feature unique to this diffuser type.

If only the membrane is to be supplied, it can be rolled up in a spiral form. This drastically reduces shipping weight and volume.

# AERATION SOLUTIONS

## COARSE BUBBLE DIFFUSER

### JetFlex® Coarse Bubble Diffuser (CBD)

For special applications, coarse bubble diffusers are also available from our product portfolio, either in a disc design or as a stainless steel tube type. Installed in a sand trap or as a post-aeration, they offer the possibility to put through large amount of air. Thus, the water is best circulated or a certain oxygen concentration in the effluent may be maintained. In addition, these diffusers are applied in activated sludge tanks in order to induce vertical flow so to prevent sludge settlement on the tank floor. JetFlex coarse bubble diffusers also offer numerous other product specific advantages:

### JetFlex® CBD 105 (disc diffuser):

- **Diameter of 105 mm**
- **Silicone membrane and glass fiber reinforced plastics for maximum chemical and thermal resistance**
- **Non-return valve (optionally)**

### Jetflex® SS-CBD (tube diffuser):

- **Two standard lengths of 335 mm and 630 mm available**
- **Material in stainless steel and so applicable in a high corrosive waste water**
- **Even at high temperature a reliable aeration system**

# CUSTOMER ORIENTATION

## Performance Dedication

We, Jaeger Envirotech GmbH, regard ourselves as manufacturer
and supplier of aeration components and systems. We traditionally provide complete tube and disc diffusers as well as single certified components according to client specifications. Additionally, we cover whole aeration tanks up to the upper edge of the basin. Cooperating with system partners we provide further solutions for municipal and industrial wastewater treatment plants made by one source.

- **We support partners in integrating systems and choosingcomponents.**
- **We meet service specifications and bid for tenders.**

## Professional partners

Today we market our products in cooperation with more than 140 individual marketing and engineering partners. Therefore, we provide all necessary knowledge and technical experience in forms of complex documentations for our partners:

- **Tables of materials**
- **Design programs**
- **Data sheets / performance specifications of the products**
- **Complex range of accessories**
- **Installation instructions**
- **Preventive maintenance**
- **Case studies / reference facilities all over the world**

Our partners combine our Jäger diffusers with their own regional know-how and own components, for example, compressors, pipe work, agitators, fixed beds and pumps.

# CUSTOMER ORIENTATION

## Proven solutions

We provide verifiably cost efficient and long-life aeration solutions for the most challenging applications. In close cooperation with leading waste water OEM customers we develop a broad variety of:

- **Waste water resistant rubber or polyurethane materials**
- **Membrane shapes and sizes**
- **Diffuser platforms**
- **Clamping mechanisms**

## Product and process quality

Jäger diffusers are manufactured in our sites in Germany, China and the USA. Processes in our production sites are certified and meet requirements according to DIN EN ISO 9001 and DIN EN ISO 14001. In our global production network we control the entire manufacturing process chain. All manufacturing and test data are recorded for traceability:

- **Compound mixing**
- **Rubber molding and extrusion**
- **Plastics injection molding of the support bodies**
- **Final assembly of the components**
- **Head loss and bubble pattern testing during the whole production**
- **Durability testing in a 6 m deep tank**

# DEVELOPMENT

## Proven product solutions

The diffusers' durability and functionality significantly determine the purification efficiency of a waste water treatment plant. Thus, we develop the materials for our diffuser membranes on our own. In our in-house laboratory our polymer engineers test waste water resistant elastomer and polyurethane materials. The combination of the raw material is optimized for various types of waste water. In the last 40 years we primarily developed specific membrane materials for numerous different types of industrial waste water:

- **EPDM for most domestic waste water in municipal treatment plants**
- **Nitrile and Urethane for high durability and efficiency in oily waste water applications**
- **Silicone based compounds for high temperature resistance and specific industrial facilities**
- **Fluoro- and other specialty polymers for exceptional treatment processes**

Our mixing facility automatically weighs up the raw materials. Internal mixers and rolling mills blend and homogenize the mixture. As a result, excellent and quality supervised basic material is available for further extrusion and injection moulding processes.

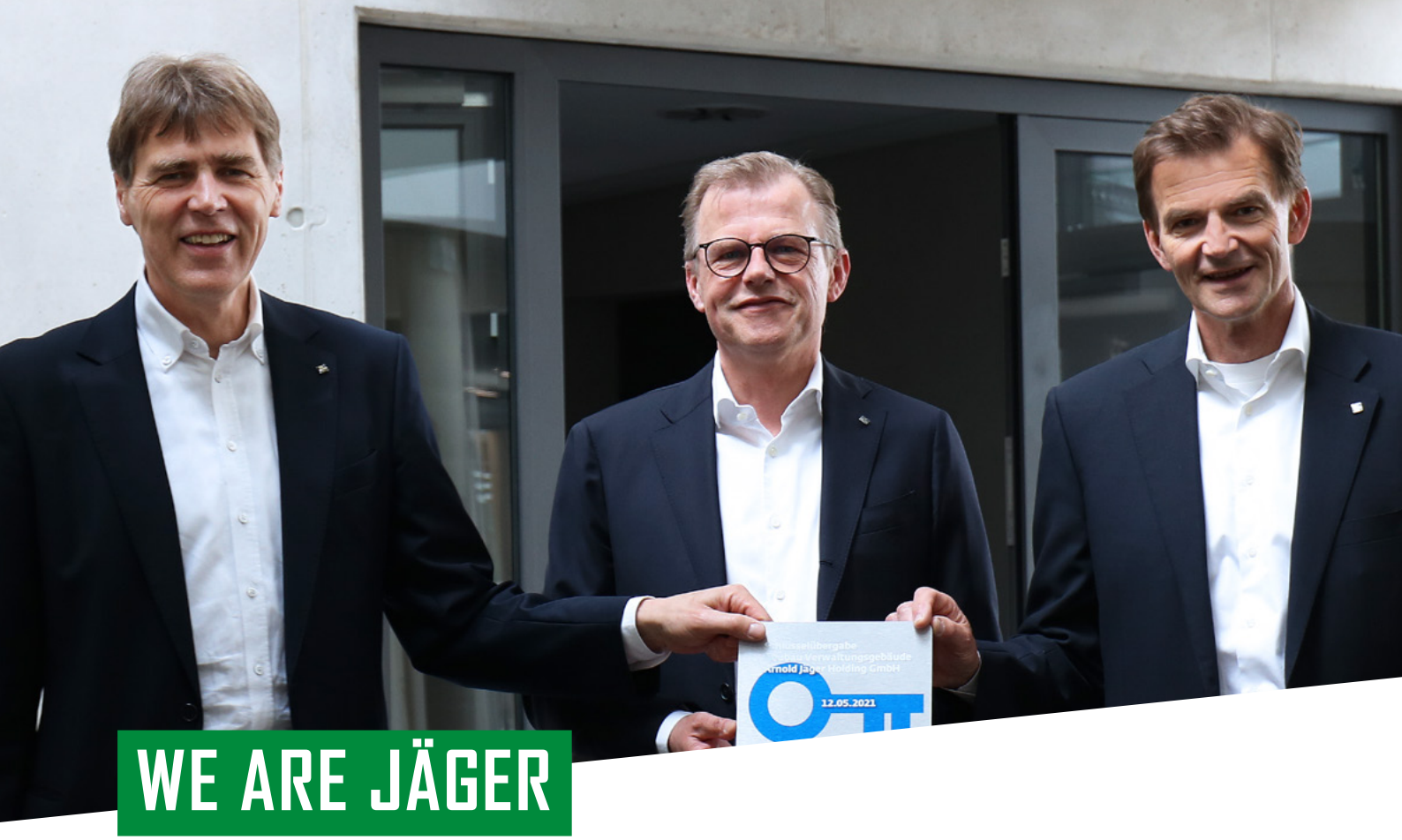
# TESTING

## Laboratory testing and field tests

In our laboratory we systematically test all products for mechanical strength and head loss performance in clean water. As part of regular audits we test the JetFlex® diffusers' durability and material fatigue with up to 1 million cycles. Furthermore, we cooperate with external partners, for example, Leibniz-University Hannover, Tongji University Shanghai/ VR China, German Rubber Institute (DIK), Hanover/ Germany, GSEE Inc, La Vergne /USA and many more.

In case of applications with specific waste water substances we recommend conducting pilot studies. Diffusers made of different membrane materials are installed on a testing frame. After a certain contact period with waste water the membrane characterictics possibly change thus durability and longevity may be estimated.

In addition, we offer to evaluate the residual life span of our diffusers for our customers. After dismantling single diffusers out of the aeration tank, we examine the head loss caused by potentially changing materials and deposits. In that way, we can estimate whether a chemical and/or mechanical cleaning can extend the diffusers' life time or it is more economic to completely replace the diffuser.




# WE ARE JÄGER

## WE GREW UP WITH RUBBER

Since 1942, when Gummi-Jäger, the parent company of Jaeger Envirotech GmbH GmbH, was founded, application-oriented advisory service, material-oriented construction and system related development are the key for the Jäger Group's success.

Our competence and performance have continuously grown with the customers' requirements. Our success is based on continuous product innovation, material- independent consulting as well as a friendly, competent service and zero-defect philosophy.

The family business in its third generation operates worldwide and is a qualified partner in the field of automotive, environmental and agricultural industry as well as in machine and plant engineering and oil exploration. Over 1.000 employees working in more than 20 sites in Europe, the USA and China aim to ensure that.

## Our Philosophy

Thinking across departments and corporate boundaries as well as generating competitive advantages for one's own company, customers and suppliers: Due to these guiding principles the Jäger Group of Companies is a professional partner in all branches of machine and plant engineering.

***Confidence in cooperation***
Successful customer relationships are based on trust. For us, this means reliability in our promises and actions, fairness in equal partnership and the trustworthiness of the Jäger entrepreneur family.

***Liability in partnership***
Joint work with the most various suppliers guarantees competitive advantages for our customers.

***Understanding in problem solution***
By the combination of the most different materials and the integration of various functions in a system component we guarantee our customers a lasting advantage in competition.

# 40 YEARS OF INNOVATION

## WE ARE THE ORIGINAL

At the beginning of the 1970's aeration systems did not longer meet the requirements of waste water treatment entirely. 40 years ago Arnold Jäger developed, cooperating with the leading German wastewater treatment plants, the first rubber membrane diffuser. Since that time, the innovative rubber EPDM-membrane diffusers save energy and processing costs.

Since 1975, Gummi-Jäger produced more than 25 million membranes and diffusers for the leading manufacturers of waste water companies all over the world. During the last four decades, Arnold Jäger and his sons took out more than 30 patents on aeration technology in Europe and the USA.

The development team of the Jaeger Group of Companies perpetually works to improve the aeration technology. In order to meet the growing importance in the field of aeration systems, all Jäger activities concerning waste water treatment have been transferred to Jaeger Envirotech GmbH GmbH in 2007.

***Our core competence is providing unique aeration solutions for biological wastewater treatment.***

***Our success is based on continuous product innovation, friendly, competent service and zero-defect philosophy***

### Well-engineered

The used materials and production processes reflect our decades of experience. JetFlex® diffusers' HD, CBD, TD and SD performance data fulfill all requirements. Due to the broad range of accessories our JetFlex® diffusers may replace any existing systems on any available aeration grids.

### Innovative

In addition to our standard product range we implement our customers' ideas and demands into tailor-made membranes and diffusers. Many renowned waste water companies effectively use our experience of waste water resistant materials, innovative production technology and complete quality control. In that way they benefit from distinctive energy efficient designs and, thus, produce sustainably competitive advantages.

We enable our customers to comply with almost every effluent specification and project-specific life cycle cost requirements. State of the art engineering tools (CAD, CAM, FEA), in house medium scale testing and evaluation facilities and the close cooperation with research organizations such as the Leibniz University of Hanover or the German Institute for Rubber Technology (DIK) ensure further continuous improvement and innovation.

# CONTACT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