



BSK®-Surface Aerators for Wastewater Treatment Plants



The latest generation of BSK® surface aerators (turbines) guarantees an outstanding oxygen transfer in aeration tanks – combined with intensive mixing of the reactor’s contents. One of the significant characteristics of the BSK® surface aerator is its similarity to the famous Francis-water turbine, an outstanding component of hydropower stations, guaranteeing highest efficiency rates. Clearly, the BSK® aerator offers a comparable performance level.

It is well known, that the aeration system of a wastewater treatment plant is the largest power consumer on site. Consequently, it is important to reduce the energy consumption to the lowest possible level. As a result, the efficiency of aeration systems is an important matter concerning the long-term energy balance. BSK® turbines play an important part in fulfill-



Floating BSK®-turbine (WWTP Krzyw – Poland)

ing this objective.

The development of BSK® surface aerators is based on the patented “Crown” turbine, which was invented by the Swiss company Norm A.M.C. AG. Thousands of “Crown”-turbines (constructed in GRP) were delivered to hundreds of wastewater treatment plants worldwide. The majority continue to operate; even units delivered more than 20 years ago.

The new BSK® generation of aeration-turbines offers two significant

features:

- **Made of 100 % stainless steel (AISI 304/ 316)**
- **Vane optimization**

The result is not only an improvement in efficiency of more than 2.5 kgO₂/kWh. Moreover, the stainless steel material extends the lifetime of the aerator resulting in lower lifetime costs.

BSK® surface aerators are available with different diameters for adjustable O₂ input capacities (see table) according to specific project conditions.



BSK®-installation at WWTP Luzern (Switzerland)

Turbine Diameter (mm)	O ₂ Input Capacity (SOTR) (kgO ₂ /h)	Installed Power (kW)
900	13	5.5
1,100	18	7.5
1,250	27	11.0
1,400	40	18.0
1,600	55	22.0
1,750	70	30.0
2,000	110	45.0
2,250	130	55.0
2,500-1	175	75.0
2,500-2	210	90.0
3,150	300	132.0



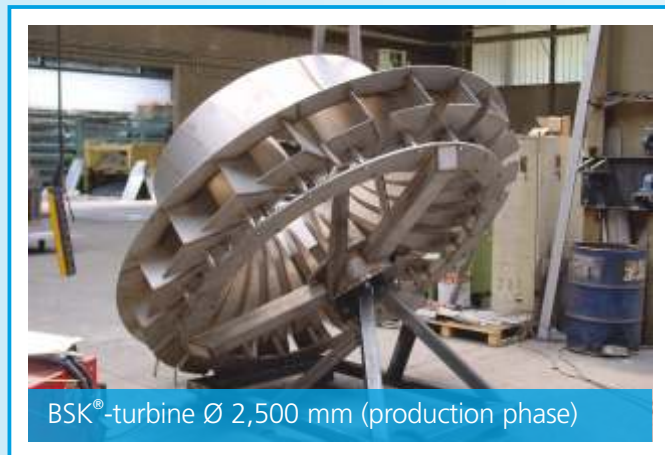
Depending on the individual application, BSK® turbines can be operated as fixed or floating systems. We offer different shapes for the floating construction to suit site specific requirements. The floating turbines are preferably used in combination with the SBR process.



WWTP Celaya (Mexico) – Floating BSK®-turbines

Compared with alternative aeration systems and in particular with fine bubble diffusers, it must be noted that the “ α -value” is at 0.9 – resulting in the reduction of oxygen transfer of not more than approximately 10 % under operation conditions. This illustrates again the outstanding efficiency of BSK® turbines.

Our scope of supply includes either the BSK® turbine or the complete aeration system. For our gear drives we cooperate with first class manufacturers with world-



BSK®-turbine Ø 2,500 mm (production phase)

wide representation, which assures perfect back-up service. Our drive assemblies are dimensioned for a bearing life time > 100,000 hours and service-factors > 2.5. The use of synthetic lubrication oil minimizes wear and tear, increases service intervals and guarantees perfect operation performance even under challenging loads and extreme climatic conditions.

Our experience has shown that most installations of BSK® turbines and drives must be adapted to specific project requirements and

operation conditions. Thus, we offer our utmost sup-

Most important features:

- **O₂-input efficiency more than 2.5 kgO₂/kWh**
- **O₂-input capacity up to 300 kgO₂/h**
- **Completely made of stainless steel**
- **Nearly unlimited service-life**
- **Fixed or floating assembly**
- **Non-clogging construction**
- **Life-long constant O₂-input capacity**

port to customers and consultants with respect to an optimized correspondence of BSK® equipment and the design of aeration tanks, sludge stabilization reactors, buffer-tanks and similar applications.

