



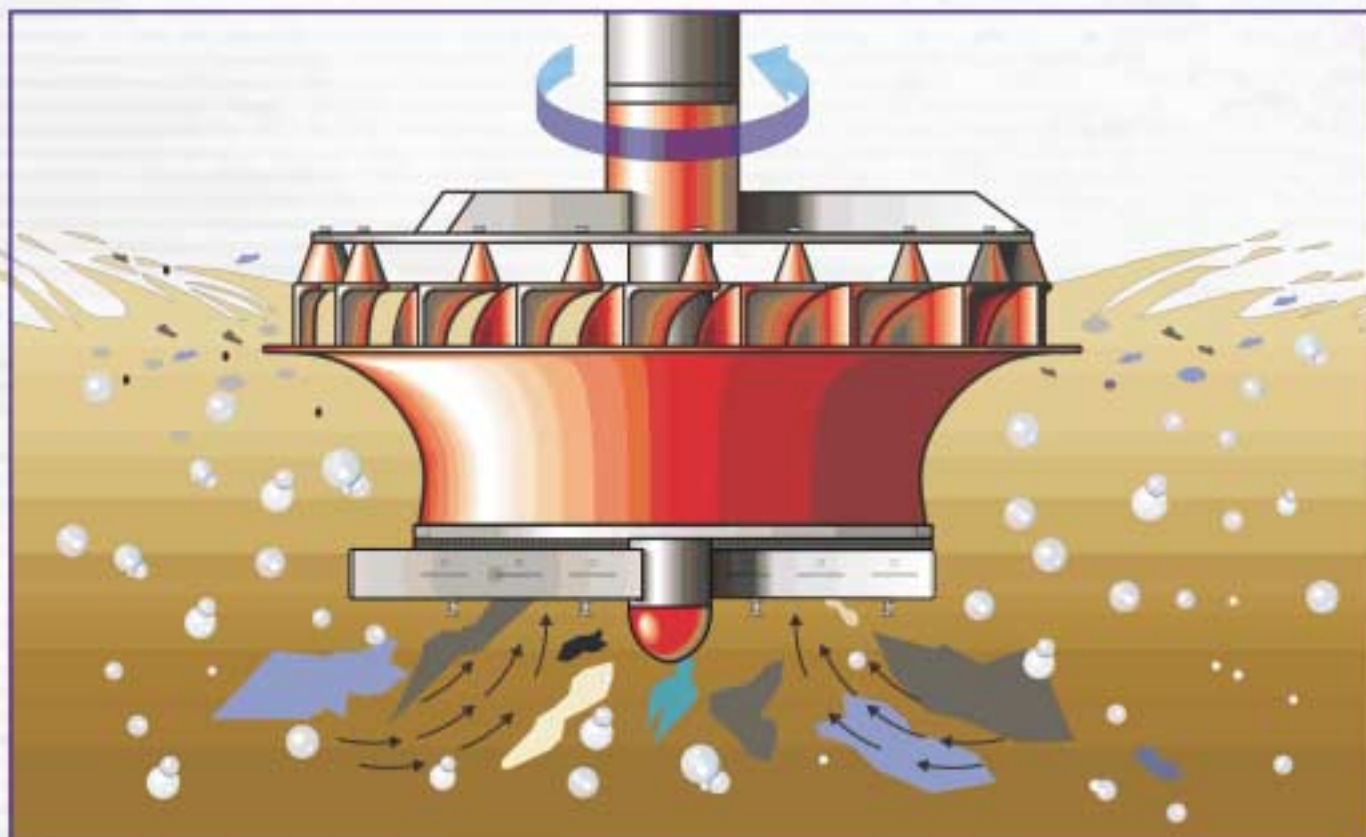
**Biogest  
International**

**The Ideal Aeration Technology for Smaller Biological Wastewater Treatment Plants:**

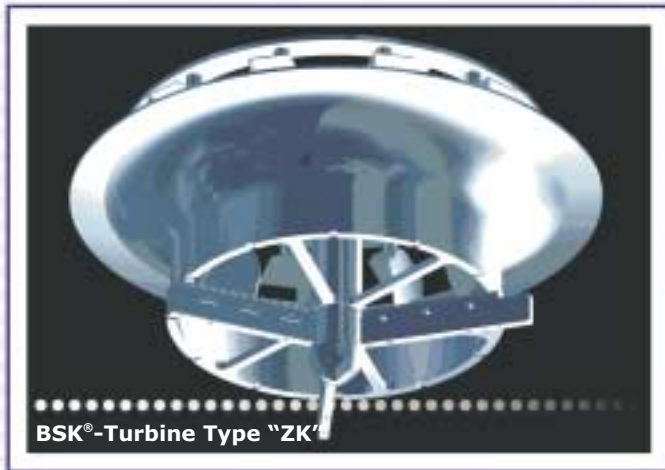
# **BSK<sup>®</sup>-Surface Aerator with Integrated Solids-Macerator**

**A "Clever" Modification of the Proven BSK<sup>®</sup>-Turbine:  
Long-Term Applications, Reliable Operation and "First Class" Stainless Steel  
Quality - The **BSK<sup>®</sup> - Turbine Type "ZK"****

**"Delete Screens and Rakes if You Design a WWTP - Use the BSK<sup>®</sup>-ZK-Turbine"**



**A typical problem of small biological WWTP's:** Manually but even automatically cleaned screens are neglected or are working unreliably, are clogging, are allowing coarse material enter the biological stage, are plaiting and blocking equipment, develop septic settlings and are impairing proper plant operation.



**The ZK-Turbine allows deletion of any equipment for solids-separation.** All material that is typical for domestic wastewater will be macerated and cut down to smallest particles: paper, textiles, hygiene-articles, plastic bags, wasted food etc.

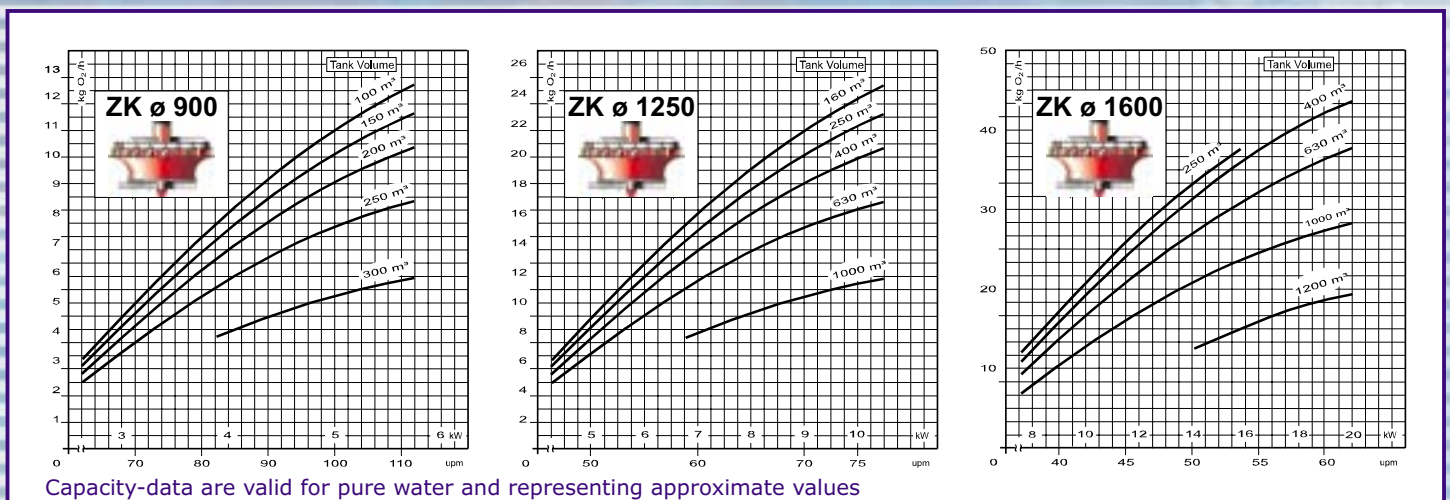
**The significant difference to well-known macerators in the inlet of a WWTP:** The solids will be cut down not only once, but again and again, hundred-fold and more. A rag changes to thousands of fibres, a plastic bag becomes thousands of smallest shreds.

**Beside a perfect macerating, the O<sub>2</sub>-input capacity is excellent:** Moreover, an attractive O<sub>2</sub>-efficiency (kgO<sub>2</sub>/kWh) as well as a high mixing capability are typical features of the ZK-modification of the famous BSK®-Turbines (more than three-thousand units are operating world-wide).

### Capacity-Data of the BSK®-Turbines, Type "ZK" (Oxygen Input Capacity)

Diameter of the Turbine (mm)	Speed Range (1/min)	Oxygen Input Range (Pure Water) (kg O <sub>2</sub> /h)	Electrical Power Requirement (Shaft-Power) (kW)	Power Requirement (approx.) at v <sub>u</sub> = 4,8 m/s (kW)		Recommended motor-size at 400 V 3-phase current (kW)
				ET +1*	ET -1*	
900	62 - 100	3 - 12	2,6 - 5,0	5,7	4,0	7,5
1250	46 - 70	5 - 24	4,3 - 10,0	11,5	7,5	15,0
1600	37 - 55	8 - 43	7,5 - 19,0	21,9	12,5	22,0

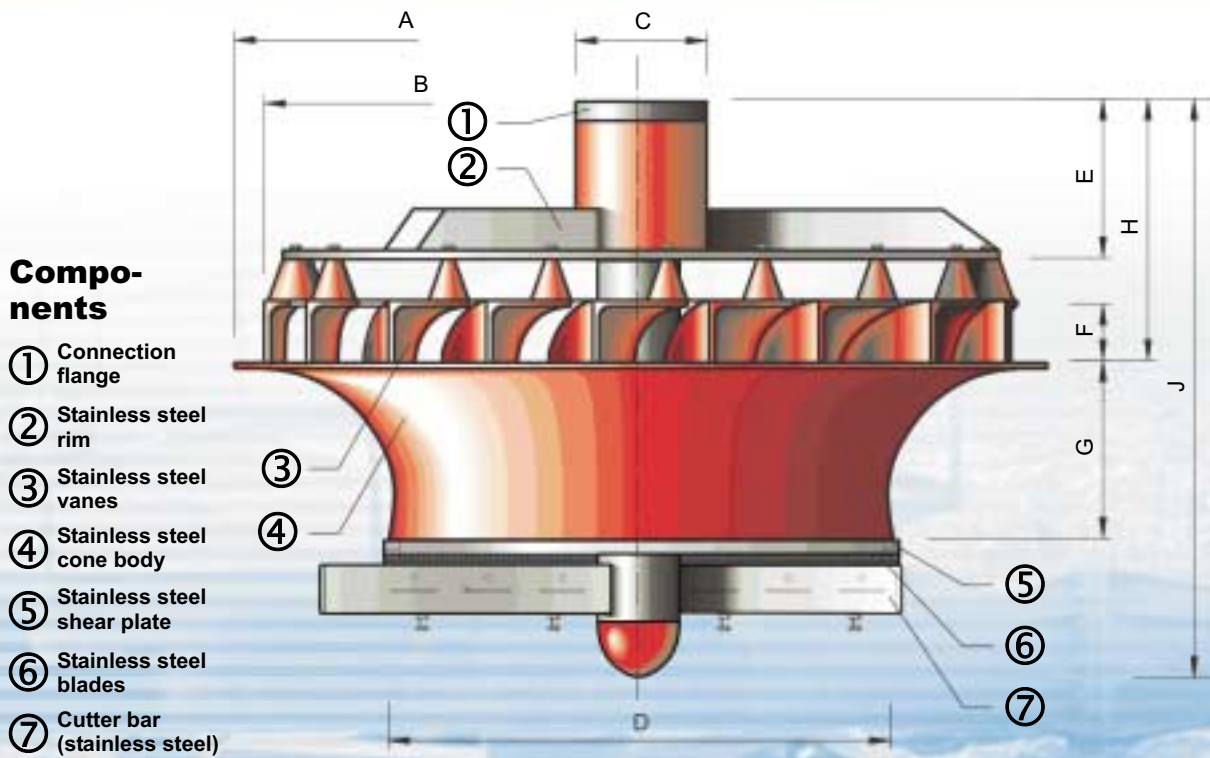
\* ET = Immersion depth (please compare Info Bulletin no. IN 005-99 DE/UK "The BSK®-Turbine - Technical Information")



**Stainless steel as the main construction material, oversized oil lubricated bearings, chromium-hardened cutting elements and precise manufacturing are typical properties of the ZK-construction for a long-standing, nearly maintenance free application.**

**Starting with the smaller and ending with the middle-sized WWTP's:** Three sizes of the ZK-Turbine are available. Up to 2,000 p.e. (per biological stage) is the approximate capacity of the biggest ZK-Turbine. Hotels, villages, holiday-parks, factories, military stations, hospitals are some of the typical applications.

### Technical Data, Sizes and Weights



		Ø 900	Ø 1250	Ø 1600	
Outer diameter	A	mm	960	1350	1660
Nominal diameter	B	mm	900	1250	1600
Flange diameter	C	mm	152	219	244
Suction diameter	D	mm	640	832	1085
Flange length	E	mm	170	160	310
Discharge height	F	mm	70	80	105
Dimension	G	mm	200	295	420
Cone height	H	mm	325	320	495
Upper size	J	mm	700	860	1200
Bolt circle diameter		mm	125	180	200
No. of threaded holes			4 x M 12	6 x M 16	8 x M 16
No. of vanes			9	12	15
No. of blade-holders			2	3	3
Net-weight		kg	115	250	410

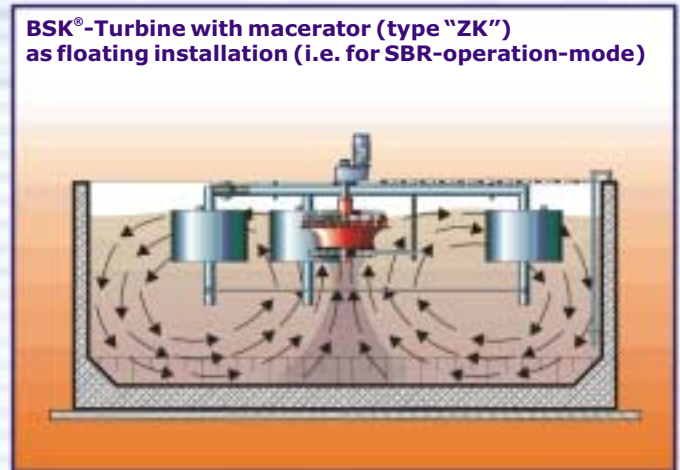
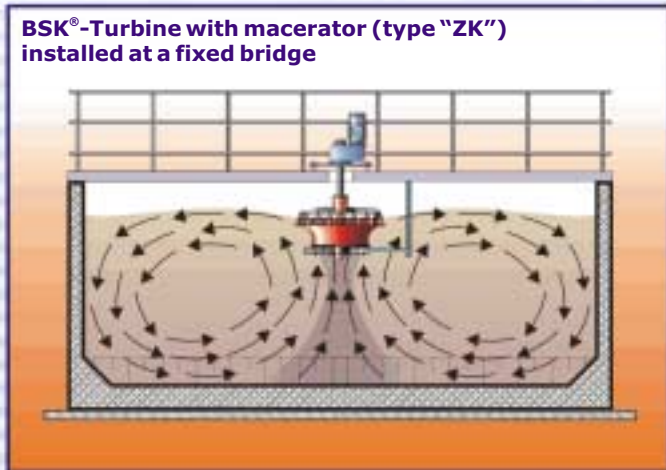


### Hydraulic Parameters of the ZK-Turbines

Turbine diameter (mm)	Spread diameter (m)	Splash height (m)	Discharge capacity (m³/h)	Circulating capacity (m³/h)
900	6,0	0,90	950	1 400
1250	7,2	1,05	2 100	2 800
1600	8,2	1,20	3 900	5 200

**ZK-Turbines have a long tradition and plenty of contented customers.** For a period of more than 20 years a ZK-Turbine (1<sup>st</sup> generation) was operating at the German SBR-WWTP in Rippolingen. Thousands of solid-tons were macerated at the WWTP of Moritzburg (2,000 p.e.) since 1992, at the WWTP of St. Peter (12 years - 1,000 p.e.) etc. Totally, more than 50 SBR-WWTP's are outstanding references for the ZK-technology.

**Whether in a SBR or in a traditional activated sludge tank:** The application of a ZK-Turbine is nearly unlimited. The installation can be either a solid floating system (SBR) or a fixed bridge (continuous flow process).



**The gear-drive: Just as good as the ZK-Turbine.** Without any compromise we play it safe and dimension the gear-drive with service-factors > 2. The calculated life time of the bearings is considerably higher than 100,000 h. And if in spite of the outstanding solid constructions a problem should be solved: A 24 h-service is at the customer's side.

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