STEP 3 VERSATILITY

Not all biological reactors are created equal. Selection of aeration technology should consider reactor depth, basin construction, redundancy/reliability requirements, and accessibility for installation and maintenance.

TIPS:

Reactor depth? Use a diffused air system in deep applications as surface aeration devices do not effectively mix at deep depths.

Earthen basin? Use mechanical or floating diffused air systems that do not contact the basin floor. Consider proper energy dispersion to avoid basin erosion.

Redundancy/Reliability? Installed spares, such as spare blowers and duplicate surface aerators, assure continuous, uninterrupted service capabilities.

Single reactor? Consider retrievable systems can be installed and maintained without draining the reactor.

Define Your Needs

STEP 4 MECHANICAL DESIGN

Equipment is subject to rigorous, dynamic loads. For long-term mechanical performance, a rugged mechanical design is mandatory. Evaluate the mechanical design of all direct and associated components for compatibility.

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WORLD LEADER IN AERATION SYSTEMS

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Choosing an AERATION System

A 4-STEP GUIDE

1 COST

2 SERVICE CONDITIONS

3 VERSATILITY

4 MECHANICAL DESIGN

EDI®

Largest Expense: ENERGY

STEP 1 COST

The costs associated with owning and operating an aeration system are significant. Maximize return on investment with a present-worth analysis considering initial and long-term operating costs.

TIPS:

CAPITAL COST – Varies widely.
A fine bubble ceramic diffuser system (with gas injection components for cleaning and patent royalties) is twice the cost of a fine bubble membrane diffuser system.

INSTALLATION COST – Product specific.
Labor requirements for an EDI tube diffuser system is 1/3 the cost of a disc system.

ENERGY COST – Single largest expense.
The 20-yr operating cost for a coarse bubble diffuser system can be 30X the capital cost for the equipment and up to 15X higher for a fine bubble system.

MAINTENANCE COST – Technology specific.
Repair frequency, labor, chemicals, and replacement parts vary based on the selected technology.
As a percent of initial capital cost, annual maintenance varies from less than 5% for a coarse bubble diffuser system, to 10% for a fine bubble diffuser system, and 20% for a mechanical aerator.

STEP 2 SERVICE CONDITIONS

Consider the operating environment to assure long-term performance. Exposure to chemicals, moisture, and heat from process water and air feed stream must be considered when selecting the materials of construction.

EDI'S AERATION DESIGN PLATFORM

EDI engineers aeration systems to fit your application needs. Key to this ability is EDI's unique Aeration Design Platform (ADP). The Aeration Design Platform features a Diffuser Platform that includes a full-line of diffused air technologies plus key support technologies to address project application requirements. Properly applied, the resulting customized aeration system provides maximum performance, reliability, and service life.

1 DIFFUSER PLATFORM

EDI offers a full line of diffuser technologies to best match the cost and performance objectives for each project. When operating cost is critical, EDI's fine pore diffuser products offer the highest oxygen transfer efficiency available.

2 MATERIAL SCIENCE

Service conditions vary! EDI has a multitude of material options for piping, supports, diffusers, and perforated membranes. Proper selection of materials maximizes service life and field performance.

3 PIPING SYSTEMS

Choose from a multitude of piping system options to match application requirements. Backed by the industry's largest dedicated manufacturing facilities, EDI can engineer and fabricate a system to meet your needs – no matter what the form or size.

4 STRUCTURAL DESIGN

Proprietary designs and patented saddle mount technology offer design flexibility and maximum structural integrity for long-term mechanical performance.

APPLICATION CHECK LIST

- ☑ **Step 1** – All cost variables have been considered and selected technology provides the best value for the project's objectives.
- ☑ **Step 2** – The service conditions have been evaluated and the appropriate materials of construction have been selected.
- ☑ **Step 3** – Installation and access constraints have been assessed and the selected piping system simplifies the installation and allows ample access for future equipment inspection and maintenance.
- ☑ **Step 4** – Design of direct and associated components have been reviewed and are appropriately designed, as the system is only as strong as the weakest link.

Customer Service and Support

Proper selection of an aeration system is not simple. Use the following EDI services to evaluate and design an aeration system that meets your project objectives.

Application Engineering Group

– full design team to assist in determining biological process requirements and aeration system design to meet project objectives.

Diffuser Express® Sales Division

– with large inventory of standard diffuser products and after-market parts to service most diffused air systems, EDI can keep your aeration system operating at peak performance.

Global Network of Market Partners

– located in over 25 countries worldwide to provide in-country service and support.

EDI Web Portal

– information for determining needs including Aeration Design Information Guide, Product and Technical Details, and select translated materials.

www.wastewater.com www.diffuserexpress.com