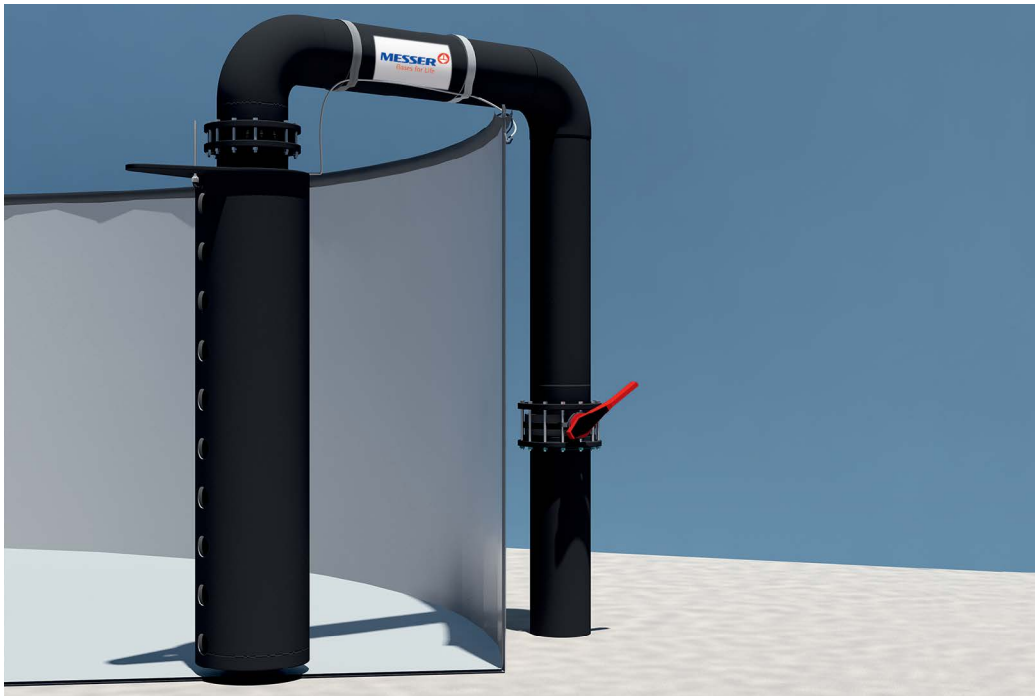


FARMOX™ Low Pressure Sidestream Injection System for Circular Tanks.

Low-pressure oxygen dissolver.



Typical installation of FARMOX™ low pressure sidestream injection system in a fish tank

Introduction

Recently, the trend of moving aquaculture production from sea cages to land-based sites has become evident. The growing of salmon smolts and production of full-size fish in large tanks on land lead to improved productivity and excellent product quality. Messer's new FARMOX low pressure sidestream injection system delivers the desired oxygenation of seawater and optimal tank hydrodynamics.

Description

FARMOX low pressure sidestream injection system is a low-pressure oxygenation system for seawater, brackish water, and fresh water tanks. The system is a patented all-in-one product which oxygenates and evenly distributes the water in the fish tank using an adjustable flow regime.

FARMOX low pressure sidestream injection system includes a water flow indicator which provides the user with an overview of the water flow into each tank.

The micro-bubbles created by FARMOX low pressure sidestream injection system reduce the concentration of dissolved nitrogen and the total gas pressure of the water. Due to this beneficial effect, external degassing units have become almost obsolete. FARMOX low pressure sidestream injection system achieves maximum effect beginning at about 15% salinity and requires a pressure of only 1-3 psi(g) to oxygenate the water, strip nitrogen, and create optimal tank hydrodynamics for fish production. The low pressure requirement makes the system very energy-efficient.

In fresh water installations, FARMOX low pressure sidestream injection system combined with the FARMOX cone or comparable pressure dissolvers can oxygenate the water to a greater extent and ensure the consistent satisfaction of even very high oxygen demands.

Installation

FARMOX low pressure sidestream injection system is installed by connecting it to the water inlet pipe and fixing the unit to the bottom of the tank. A retrofit of FARMOX low pressure sidestream injection system to existing tanks is very simple and inexpensive. For large fish tanks with high water flow rates, multiple FARMOX low pressure sidestream injection system units can be installed. FARMOX low pressure sidestream injection system is available for a wide range of tank sizes from 20 to 65 ft diameter, and volumes from 10,500 to 400,00 gal. Larger units are currently under development.

FARMOX low pressure sidestream injection system is designed to achieve stable operation and requires minimum maintenance. It is also simple to remove for purposes such as disinfection. The direction of the water outlet jets can be easily adjusted to tune tank hydrodynamics for different fish species, size, stock density, and water retention time.

It is recommended that FARMOX low pressure sidestream injection system installations be combined with FARMOX flow control skid oxygen control cabinets for optimal



FARMOX low pressure sidestream injection system in operation combined with the FARMOX flow control skid oxygen control cabinet

operation and oxygenation. The FARMOX flow control skid can be connected to the customer's existing automatic oxygen management system.

Benefits

- High oxygenation efficiency
- Low pressure requirement
- Low power consumption
- Optimal tank hydrodynamics
- Reduced nitrogen saturation
- Easy to install
- Low maintenance

Technical data*

Tank diameter [ft]	Water flow rate [gal/min]	Number of FARMOX low pressure sidestream injection units per tank	Outer diameter FARMOX low pressure sidestream injection [in]	Connection pipe diameter [in]	Oxygen capacity per FARMOX low pressure sidestream injection unit [lb/h]
20	180	1	8	5.5	2.4
26	450	1	12.5	8	5.5
33	1,050	1	18	12.5	13.2
39	1,580	1	19.75	14	20.9
49	3,170	2	19.75	14	18.7
66	6,340	2	31.5	19.75	38.6

Note * Indicative values



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