

CASE STUDY

Samba in the aeration tank

Maximum efficiency thanks to Nereda® process and AERZEN Delta Hybrid

144,000

Population values

38,000 m²

Operating area

1.8 Mio l

Wastewater per day

The issue

Maximum capacity in the smallest space

In urban areas like Rio de Janeiro (Brazil), there is only little space available. Space-saving wastewater treatment is therefore a must. In addition, there are high demands on cleaning performance, cost efficiency, reliability and sustainability. Increased attention is paid to the factors energy efficiency and life cycle costs.



We are happy to have AERZEN as partner on our side. We expect energy savings of 10% over the next 30 years“

Jose Pedroso
Maschinenbauingenieur Zona Oeste Mais Saneamento



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EXPECT PERFORMANCE

The solution

Screw Blower: Efficient und compact

Biological wastewater treatment at the treatment plant in Bangu, a district of Rio de Janeiro, is carried out using the innovative Nereda® process. Five rotary lobe compressors from AERZEN ensure the optimum oxygen supply in the aeration tank.

1 The oil-and absorption agent-free Delta Hybrids of type D 1525 deliver a volume flow of between 2,600 and 6,286 Nm³/h (differential pressure = 700 mbar) with a motor rating of 200 kW each. Thanks to their wide control range of 25 to 100 %, they can guarantee the optimum oxygen supply for the three phases of the Nereda® process - aeration, sedimentation, feeding - at all times.

2 The compact design enables space-saving side-by-side installation. Thereby, the footprint of the machine room is 20% smaller compared to other blower technologies - even though the D 1525 are the largest rotary lobe compressors AERZEN has in its portfolio.



Type of technology	Screw blower
Version	Positive pressure
Volume flows	100 to 9,000 m³/h
Conveying media	Air, neutral gases
Conveying	Oil-free
Positive pressure	-850 mbar
Negative pressure	1,500 mbar

The result

Minimum life cycle costs

Compared to international competitors, AERZEN's Delta Hybrids were 15% more expensive in CapEx terms, but thanks to the excellent OpEx balance - 7% lower energy costs and significantly lower service and maintenance costs - the 15% extra cost is amortised after only five years. Around 60,000 kWh can be saved annually.



60,000 kWh
Savings per year

Summary

Nereda®-systems require significantly less space, achieve enormous energy savings, can dispense with additional chemicals and ensure stable, low-maintenance operation with excellent discharge values. In combination with highly efficient rotary lobe compressors made by AERZEN, significant process, cost and environmental benefits can be achieved.