Installation Details
- Fully operational plant
- FTFT – 250 L/s
- DZFO installed between two basins to feed all 4 ASPs
- Normal operation ongoing

Oscillator Details
- DN250
- Materials of construction – acetal, stainless, EPDM (265kg)
- Capacity = 2,400 m³/hr (suction air flow)

Mass Transfer - Normal Operation
- Set points
  - DO = 1.1mg/L (zone 2), 0.9mg/L (zone 3)
  - Pressure = 660mBar
- Pre-installation (127 days)
  - Daily inlet flow = 69.1L/s
  - Average blower power = 51.5kW/h
- Post-installation (124 days)
  - Daily inlet flow = 72.8 L/s
  - Average blower power = 42.1kW/h
- 5.5% increase in inlet flow
- 18.2% blower power reduction

Hammarby Sjöstad’sverk, Stockholm, Sweden
- Fully operational pilot plant
- Inlet from Stockholm Water’s Henriksdal WwTW (1:3600 scale) – 1L/s
- Reactor 4 retrofitted with 4x DN9.5 DZFOs and 8x9” EPDM disc diffusers
- Capacity = 40m³/hr
- 53% improvement in mass transfer

Desai-Zimmerman Fluidic Oscillator (DZFO)
- Low oscillation onset – good turn down
- Frequency virtually independent of flow rate
- Low frequency dispersion
- Lower friction losses than TZFO
- Asymmetric loading possible

Mass Transfer - Fluidic Oscillator
- Control
  - Time = 336 hours
  - Total influent = 6,863m³
  - Total air flow = 7,286 m³
  - Average DO = 2.14 mg/L
  - Total DO = 14.7kg
  - Mass transfer efficiency = 2.02g DO/m³ air
- Oscillator
  - Oscillator = 4 x DN3
  - Time = 386 hours
  - Total influent = 8,117m³
  - Total air flow = 5,774 m³
  - Average DO = 2.19 mg/L
  - Total DO = 17.81kg
  - Mass transfer efficiency = 3.08 g DO/m³ air

53.0% improvement in mass transfer efficiency with fluidic oscillation

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