CO2 DEGASSERS

REDUCE DISSOLVED CO2 ECONOMICALLY

PROVEN TECHNOLOGY

STANDARD MODELS AND CUSTOM DESIGNS

FORBES
PLASTICS TANKS AND ENVIRONMENTAL TECHNOLOGIES
Forbes Degassers are well proven as an efficient, reliable and cost-effective approach to reducing the problem of dissolved CO₂, during water treatment.

This installation, on the roof of an existing pump house at Mid Kent Water's Detling plant near Maidstone saved substantial ongoing costs for caustic dosing – caustic consumption was reduced by 80%.

The twin towers were fabricated from Celmar/GRP dual laminate and are light enough not to affect the structure of the existing building.

The towers look impressively large close to but part of Forbes design brief was to limit their overall height to minimise the visual impact in the suburban location.

Forbes Degassers operate on the principle of passing the water to be treated over a large surface area whilst blowing air against the flow. The resulting mass transfer of gas at the interface of the water and air removes the acid-forming carbon dioxide.

Forbes mass transfer process design is accomplished with the company's own dedicated suite of software backed by substantial resources of knowledge and experience.

A design life of 20 years is achieved by the use of high quality plastics throughout the construction. Provided that water and air supplies are free from solid impurities, Forbes Degassers normally require no maintenance other than regular external inspection. Where practicable, fans are sited at low level for easy inspection and access to filters, if fitted.

Years of trouble-free performance in the field have proven the essential reliability of Forbes Degassers. Corrosion-free construction; simplicity of installation and setting up; dependable automatic controls - all contribute to long, trouble free performance.
The relatively light weight of plastics materials minimises transport costs and standard FD units are available export packed. Their modular construction also facilitates handling and installation and no special equipment is needed to assemble the components.

**RELATIVE CAPACITIES**

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**DIMENSIONS**

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**CONNECTIONS**

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1FD 6, 10, 17, 27, 44 are fitted with Aquamatric glass filled plastic control valve.

FD 70, 100, 150, 200 are fitted with air operated rubber lined metal butterfly valve and require 5.5 bar gauge air supply. If no air is available a small compressor or an electrically operated valve may be fitted.

Standard connections are BS10 Table E flanges with fixing holes arranged off centres. Other standards are available.

FD 100, 150 & 200 have offset towers.
**Performance**

With the standard controls the minimum water pressure at the inlet flange is 0.5 bars g and the maximum is 5 bars g. The unit comprises a packed tower with base mounted fan and integral sump. Sump retention time is approximately 2 minutes at maximum flow.

**Controls**

Control of the inlet water flow is by a float-operated ball valve. Sensing the sump level, a float switch within the sump controls output pumping, protecting pump equipment from dry running.

**Standard Features**

Corrosion-free high quality all plastic centrifugal fan, inlet, outlet and overflow connections
Inlet valve and pipework to tower top
Tower cowl
Sump access hatch
Sump level switch with approx. 5M fly lead.

**Standard Electricals**

Fan motor – Supply 415V, 3PH, 50Hz
Insulation: Class ‘F’
Enclosures: TEFV, IP55
(hoseproof)
Sump level switch – 5A rating at 250V AC

**Standard Materials**

Tower/sump/cowl: Black copolymer polypropylene;
2/3/7% carbon black
Tower Packings:
Packing support grid: GRP
Pipework: Polyethylene
Float: Polyethylene
Fan casing/impeller: Polyethylene
Fan support frame: Galvanised carbon steel
Nuts, bolts etc: Galvanised carbon steel and polypropylene
Float switch: Polypropylene encapsulated microswitch
Switch cable: PVC covered

**Optional Extras and Variations**

Standby fan unit
Fixing lugs
Insulated and/or heated sump
Tropicalised motor
Flameproof motor
Non-standard electrical supplies
Fan intake filters (including bacteriological types)
Special purpose designs
(Split flow, dual duty, heavy CO₂ loads etc)

**Installation Notes**

The unit is supplied as two major components, tower and sump, which plug together in situ.
The sump must sit on a firm base flat over its full area.
After loading the packings and fitting the cowl, the electrical and piping connections can be made.
Connecting pipework must not impose loads on flanges.

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**Specification Notes**

To enable us to fully evaluate your requirements and to commend a standard model, an adaption, or to prepare a custom design, we need the following information:

**Water Supply**

Flow: maximum and minimum in M⁻³/hr. The minimum flow acceptable for standard FD models is approximately 65% of the designed maximum.
A modified or custom design may cater for requirements outside standard specifications.

CO₂ Content: The maximum expected content of CO₂ if more than 200 ppm (expressed as CO₂).

Temperature: Anticipated maximum and minimum temperatures of the water supply.

Solids Content: Any possible solids content should be determined as precipitated on the packings, it could affect the operation of the unit.

Dissolved Matter: Analysis of your water supply should also determine the presence of any material likely to precipitate and affect the performance of the unit.

Pipework: Advise us of your preferred orientation for input and output pipework in order that we may check compatibility with normal configurations of the unit.

**Operating Conditions**

Sit: Indoors or outdoors.
Air Temperature: Expected maximum and minimum.

Wind Speed: Anticipated extreme conditions.

Atmospheric Dust: Filtration of the fan intake may be necessary to preclude sludge build-up in the sump.

Height: Adequacy for installation, assembly and service.

Electricity Supply: Voltage, phases, frequency.

Electrical Safety: Conditions of high humidity and/or the proximity of flammable substances should be anticipated in the specification of the fan motor.

**Environment**

Forbes Degassers are suitable for indoor and outdoor operation. It is recommended that fixing lugs be specified for outdoor locations to secure the sump to firm anchor points. Indoor installations are often vented to the atmosphere.

For further information visit our website at: www.forbesgroup.co.uk