



**REDUCE DISSOLVED
CO₂ ECONOMICALLY**

**PROVEN
TECHNOLOGY**

**STANDARD
MODELS AND
CUSTOM DESIGNS**

**CO₂
DEGASSERS**

FORBES



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 iGRP 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.

REDUCE
DISSOLVED
CO₂

ECONOMICALLY

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.

FORBES



PLASTICS TANKS AND
ENVIRONMENTAL TECHNOLOGIES

STANDARD FD MODELS

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



	FD6	FD10	FD17	FD27	FD44	FD70	FD100	FD150	FD200
FLOW CAPACITY cubic metres/hour	6	10	17	27	44	70	100	150	200
FAN RATING kilowatts	0.57	0.57	0.57	0.55	1.1	2.2	2.2	4.0	5.5
DRY WEIGHT kilograms	110	135	175	235	320	435	580	770	1000
MAXIMUM OPERATING HEIGHT m	600	800	1150	1750	2700	3800	5100	6750	8900

DIMENSIONS

millimetres

	FD6	FD10	FD17	FD27	FD44	FD70	FD100	FD150	FD200
A	983	1168	1345	1548	1950	2310	2786	2745	3050
B	350	450	600	760	970	1230	1186	1455	1678
C	495	620	800	990	1270	1580	1670	2090	2290
D	5240	5255	4085	4125	4160	4220	5735	5780	6257
E	885	885	1068	1068	1068	1068	1570	1570	1740
F	755	755	950	950	950	950	1372	1372	1524
G	175	175	180	215	215	240	275	300	380
H	75	90	115	140	175	220	250	275	320
I (Min)	225	210	200	180	150	110	170	125	80
J	695	695	895	845	845	815	1220	1220	1350
K	1085	1085	1280	1315	1355	1380	1872	1922	2124
L	572	664	703	854	1045	1255	1258	1487	1640
M	390	440	545	680	775	940	1150	1300	1500
N	514	559	402	481	581	695	600	700	800
P	572	664	703	854	1045	1255	1258	1487	1640

CONNECTIONS

nominal bore

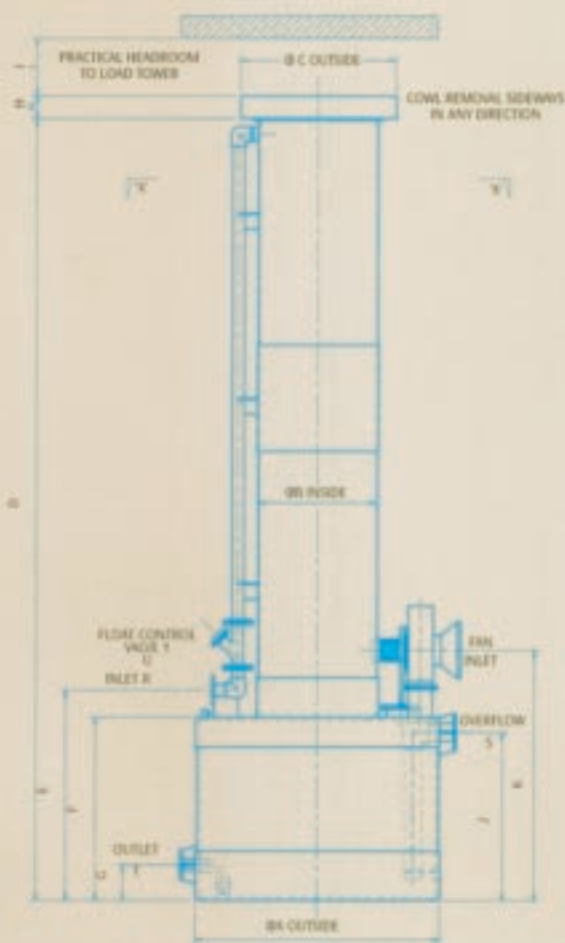
	FD6	FD10	FD17	FD27	FD44	FD70	FD100	FD150	FD200
R	40	40	50	75	75	100	150	150	200
S	50	50	75	100	100	150	200	200	250
T	40	40	50	75	75	100	150	200	250
U (Valve) †	25	40	50	65	65	80	100	100	150

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

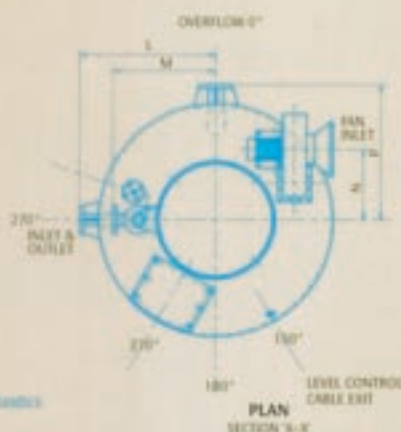
FD 70, 100, 150, 200 are fitted with air operated rubber lined metal butterfly valve and require 5.5 bar gauge air supply. If no air is available a small compressor or an electricity operated valve may be fitted.

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

FD 100, 150 & 200 have offset towers.



SEE PLAN VIEW FOR STANDARD ORIENTATION OF FITTINGS
OTHER LAYOUTS MAY BE MADE TO YOUR REQUIREMENTS



STANDARD FD MODELS

PERFORMANCE

The units are designed to reduce the carbon dioxide content (expressed as CO₂) from 200 ppm to 5 ppm at 20 deg C. Minimum water pressure at the inlet flange is 0.5 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 1/2% carbon black
Tower Packings: Polypropylene
Packing support grid: GRP
Pipework: Polypropylene
Float: Polypropylene
Fan casing/impeller: Polypropylene
Fan support frame: Galvanised carbon steel
Nuts, bolts etc: Galvanised carbon steel and polypropylene
Float switch: Polypropylene encapsulated micro switch
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.

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 M³/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

Siting: 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.

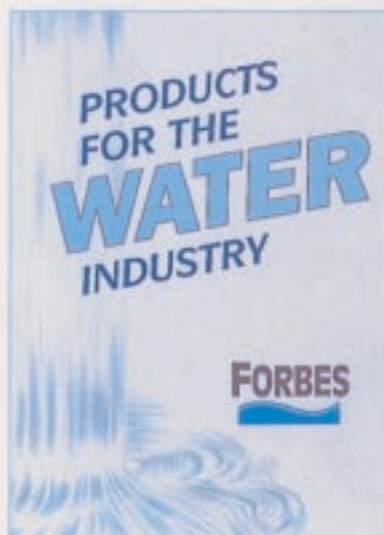
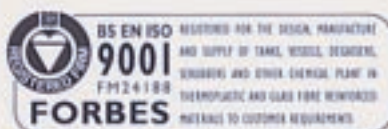
Headroom: Adequacy for installation, assembly and service.

Electricity Supply: Voltage, phases, frequency.

Electrical Safety: Conditions of high humidity and/or the proximity of inflammables 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.



Do talk to us about our other products for the Water Industry

FORBES

FORBES

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