



**REDUCE DISSOLVED  
CO<sub>2</sub> ECONOMICALLY**

**PROVEN  
TECHNOLOGY**

**STANDARD  
MODELS AND  
CUSTOM DESIGNS**

COURTESY DEWPLAN LTD

# CO<sub>2</sub> DEGASSERS

**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 CO<sub>2</sub> 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.

**REDUCE  
DISSOLVED  
CO<sub>2</sub>**

**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.

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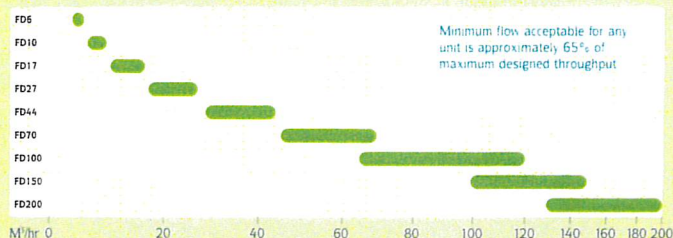




# STANDARD FD MODELS

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	0.37	0.37	0.37	0.55	1.1	2.2	2.2	4.0	5.5
DRY WEIGHT kilogrammes	110	135	175	235	320	435	580	770	1000
MAXIMUM OPERATING WEIGHT kg	600	800	1150	1750	2700	3800	6100	8750	11950

## DIMENSIONS

millimetres

	A	B	C	D	E	F	G	H	I (Min)	J	K	L	M	N	P
	983	1168	1245	1548	1930	2310	2286	2743	3050						
	350	450	600	760	970	1220	1186	1453	1678						
	495	620	800	990	1270	1580	1670	2010	2290						
	3240	3255	4085	4125	4160	4220	5735	5780	6257						
	885	885	1068	1068	1068	1068	1570	1570	1740						
	755	755	930	930	930	930	1372	1372	1524						
	175	175	180	215	215	240	275	300	380						
	75	90	115	140	175	220	230	275	320						
	225	210	200	180	150	110	170	125	80						
	695	695	855	843	843	815	1220	1220	1350						
	1085	1085	1280	1315	1355	1380	1872	1922	2124						
	572	664	703	854	1045	1235	1258	1487	1640						
	390	440	545	680	775	940	1130	1300	1500						
	314	339	402	481	591	695	600	700	800						
	572	664	703	854	1045	1235	1258	1487	1640						

## CONNECTIONS

nominal bore

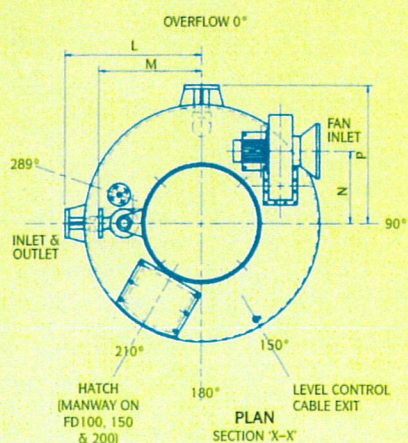
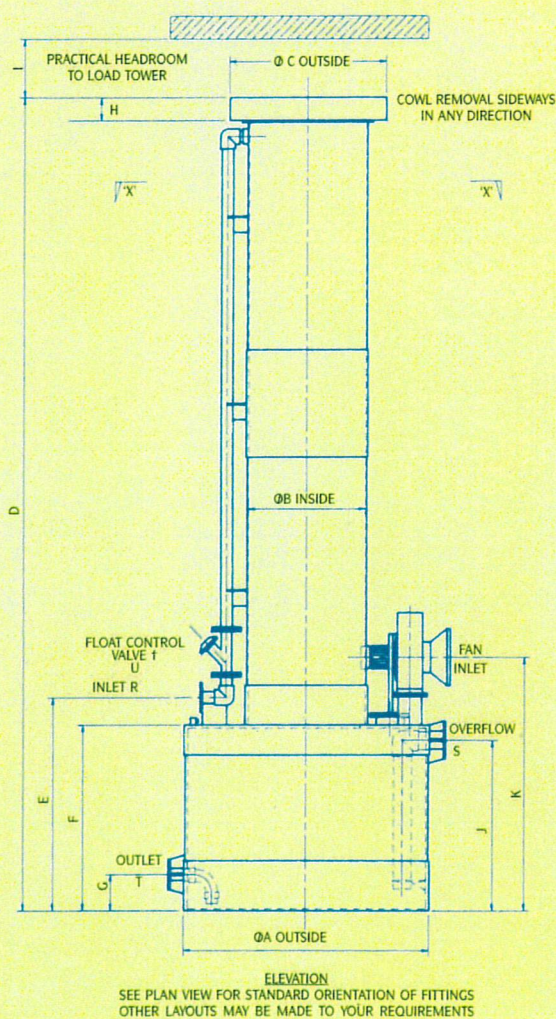
	R	S	T	U (Valve) †
	40	50	75	100
	150	200	250	300
	40	50	75	100
	150	200	250	300
	25	40	50	65
	65	80	100	150

†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 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.





# STANDARD FD MODELS

## 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 1/2% carbon black
Tower Packings:	Polypropylene
Packing support grid:	GRP
Pipework:	Polypropylene
Float:	Polypropylene
Fan casing/impellor:	Polypropylene
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 CO<sub>2</sub> 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 M<sup>3</sup>/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.

**CO<sub>2</sub> Content:** The maximum expected content of CO<sub>2</sub> if more than 200 ppm (expressed as CO<sub>2</sub>).

**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 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.

- ◆ Fume and Odour Scrubbing Systems
- ◆ Vent Scrubbers
- ◆ CO<sub>2</sub> Degassers
- ◆ Stripping Towers
- ◆ Carbon Adsorption Units
- ◆ Bio Treatment Systems

For further information visit our website at: [www.forbesgroup.co.uk](http://www.forbesgroup.co.uk)

# FORBES

PLASTICS TANKS AND ENVIRONMENTAL TECHNOLOGIES

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