



DC/DN RBC Modules

Biological Treatment Stage for Small to Medium Sized Wastewater Treatment Plants



KEE Process Modular RBC Systems in the UK

General Features

- Simplicity of design leading to considerable savings in civil engineering design and installation costs.
- Cost effective.
- Easy to install.
- High efficiency; proven performance and reliability.
- Standard modules sized generally in accordance with BS 6297.
- Treatment for populations up to 750 persons equivalent within a single module.
- Larger flows catered for by installation of multiple RBC modules, or larger diameter RBCs in concrete tanks (Please see SL0011 - Technical Brochure 4 - Large Diameter RBCs for further details).
- DC module range optimised for carbonaceous BOD removal.
- DN module range optimised for nitrification.
- Unique Managed Flow technology incorporated as standard.



Applications

- Biological treatment stage for small to medium sized wastewater treatment plants providing carbonaceous BOD removal and/or nitrification.
- To replace, or supplement, existing overloaded biological treatment stages in domestic and industrial wastewater treatment plants.
- Used as biological treatment stage of the KEE Process Managed Flow Modular Treatment system (layout overleaf) - an economical, flexible and adaptable wastewater treatment package.

RBC Construction

- Shaft constructed from hollow, circular steel tube with stub shaft assemblies attached at both ends.
- Media - the biomass carrier - is supported on the RBC shaft through galvanised structural steel framework.
- The complete RBC shaft assembly is driven by a direct coupled, shaft mounted electric geared motor for larger diameter RBCs and through chain drive on smaller diameter RBCs.
- The design parameters and selection criteria for structural elements and electro-mechanical components are detailed on the following page.

Main Shaft

- Shaft manufactured from circular hollow, mild steel structural tube to BS EN 10210-1:1994, BS EN 10210-2:1997 or BS EN 10219-1:1997, BS EN 10219-2:1997.
- Shot blasted in accordance with BS 7079 parts O, A1, A1 Supplement and C1 to C4.
- Zinc metal sprayed in accordance with BS EN ISO 14713:1999 and BS EN 22063:1994; minimum thickness 150 microns; sealed using 2 coats of vinyl acrylic sealer in accordance with BS EN ISO 12944-5:1998.
- Welding to British Standards and Welding Institute codes of practice.
- Designed for a 30 year fatigue life.

Media Framework

- Media framework attached to shaft via collars.
- Fabricated in mild steel to BS 4-1:1999, BS EN 10056-1:1999, BS EN 10056-2:1993 and BS EN 10210. Protected by galvanising to BS EN ISO 1461:1999.
- Designed for a 30 year fatigue life.

Specification/Design

RBC enclosure (Casing) manufactured in durable, rot and corrosion proof, Glassfibre Reinforced Polyester (GRP) - combining outstanding strength with light weight.

GRP casing designed as a structural element for above ground installation or underground installation to withstand hydrostatic and ground pressures.

Sectional GRP removable covers.

Steelwork hot dip galvanised to BS EN ISO 1461:1999

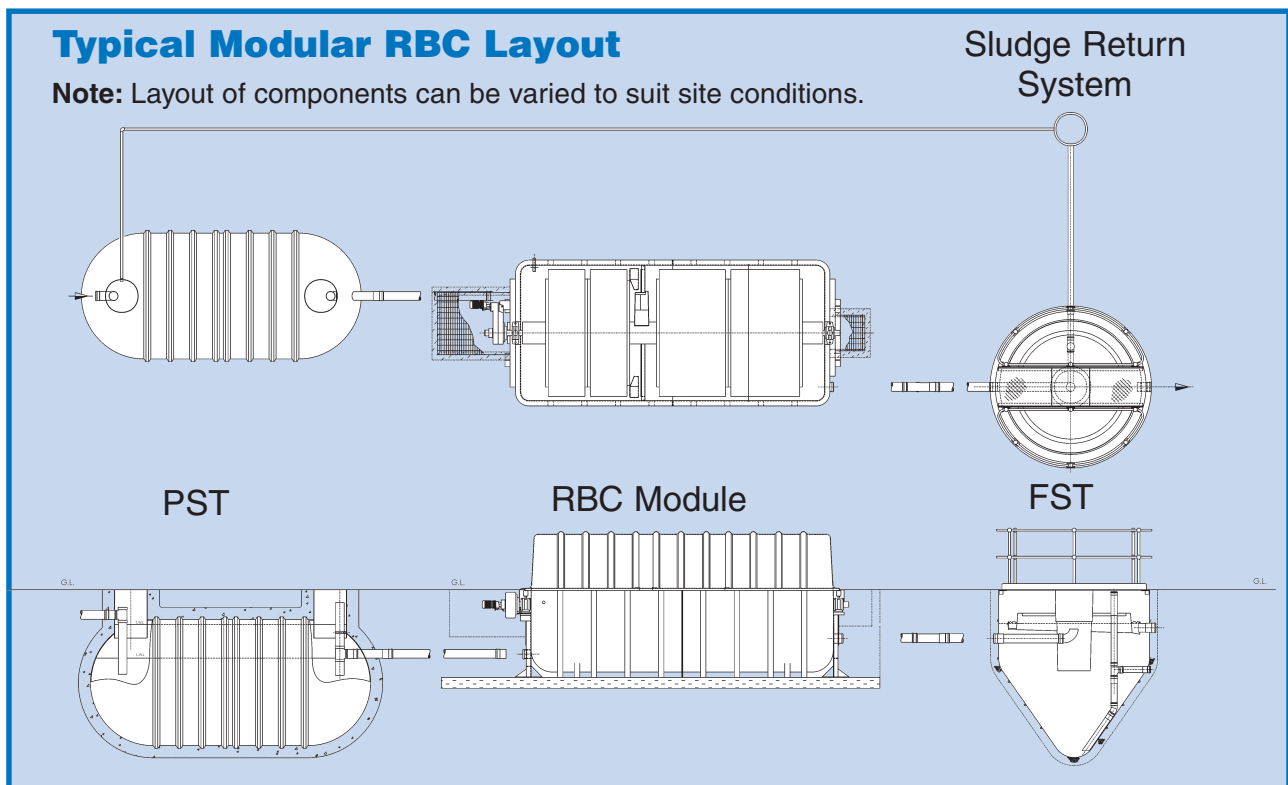
Easy access to bearings and gearbox/motor for maintenance.

Compliance with Health and Safety Regulations.

Optional RBC installation in steel or in situ concrete tanks.

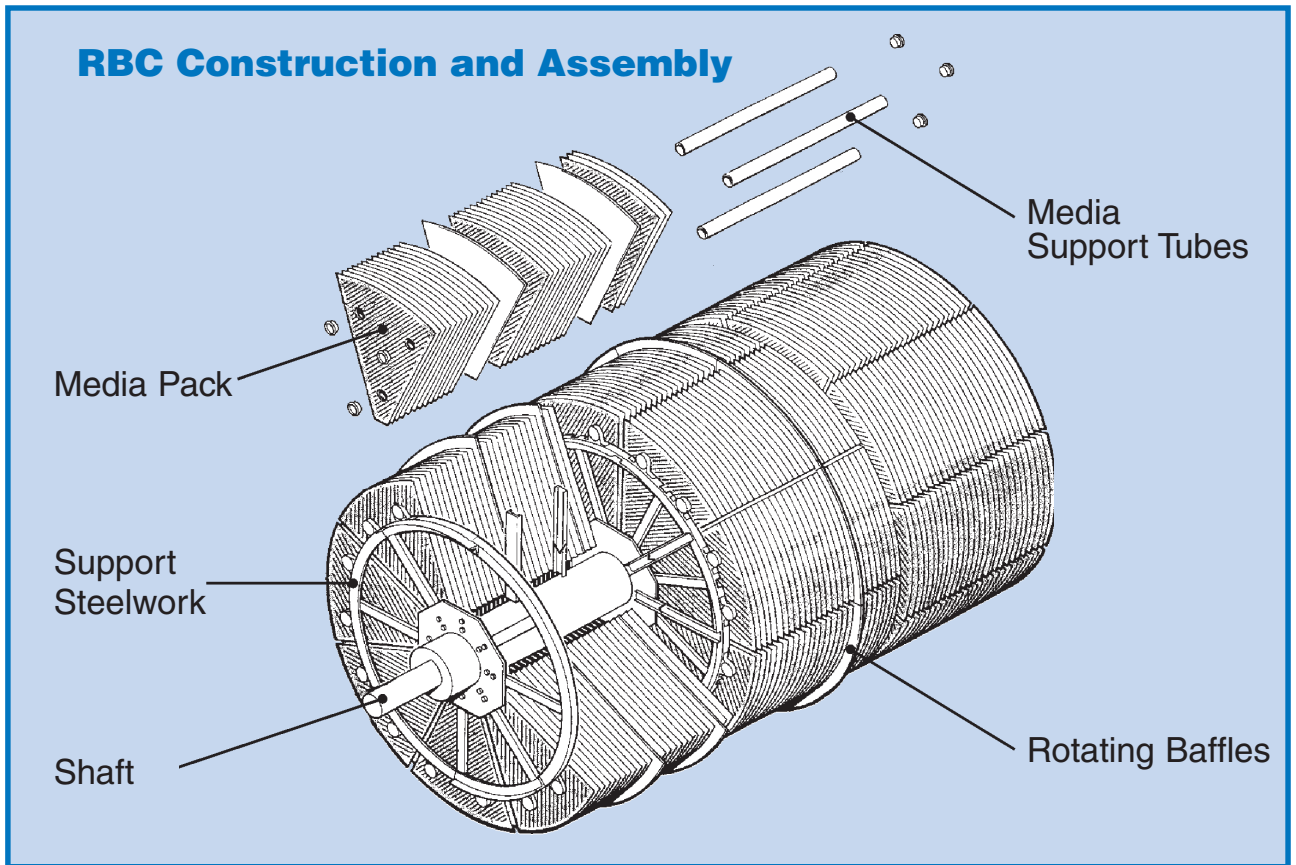
Manufactured under

BS EN ISO 9001 Quality Management System accreditation.



Bearings

- Type - spherical roller - self-aligning.
- Selection Criteria - 100,000 hrs life L_{10} basis.
- Cartridge lubrication system.
- Split self-aligning bearings also available.



Drive

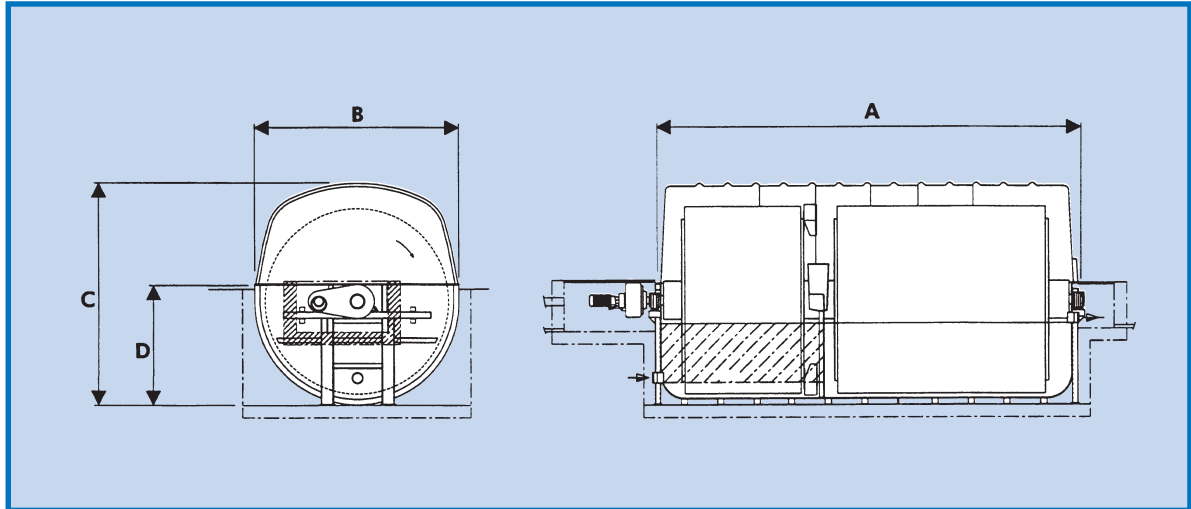
- Direct coupled shaft mounted gearboxes and chain drive on smaller diameter RBCs.
- Selected for continuous operation.
- Selection Criteria - 100,000 hrs life L_{10} basis.
- Synthetic lubricants for improved performance.
- Life enhanced by soft-start device for shaft mounted drives.

Media

- 100% virgin vacuum formed polypropylene co-polymer sheets.
- Stabilised against Ultra-Violet decay.
- High tear resistance.
- Media available at specific area to volume density of $150\text{m}^2/\text{m}^3$, $180\text{m}^2/\text{m}^3$ and $210\text{m}^2/\text{m}^3$.
- Media is arranged and mounted on the RBC shaft through structural steel framework and media support tubes.
- Radial and annular separation of media to provide complete drainage.
- Media packs can be assembled and removed individually from the frame work.
- Media support tubes designed for a 30 year fatigue life.

DC/DN Rotor Modules

See table below for specific dimensions



		UNIT SIZE														
		6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Measurements	Length - A	mm	3810	4080	4510	5480	5480	6450	4950	5840	6310	6770	5530	6420	7350	7780
	Width - B	mm	2170	2170	2170	2170	2170	2170	2700	2700	2700	2700	3350	3350	3350	3350
	O.A. Height - C	mm	2215	2215	2215	2215	2215	2215	2700	2700	2700	2700	3375	3375	3375	3375
	Flange Height - D	mm	1355	1355	1355	1355	1355	1355	1650	1650	1650	1650	2315	2315	2315	2315
	Bearing Centres	mm	2410	2865	3220	4100	4100	5010	4950	5840	6310	6770	5550	6440	7370	7800
	Pipework Diameter	mm	160	160	160	160	160	160	160	160	160	160	160	160	160	160
	Media Diameter	mm	1850	1850	1850	1850	1850	1850	2350	2350	2350	2350	3000	3000	3000	3000
	Geared Motor Rating *	kW	0.25	0.25	0.25	0.37	0.37	0.55	0.37	0.55	0.55	0.55	0.75	0.75	1.1	1.5
	Bearing Diameter	mm	60	60	60	60	60	80	80	100	100	100	115	115	115	125
	Media Area - DC Units	m ²	552	716	853	1050	1233	1596	2000	2400	2800	3120	4000	4800	5600	6000
	Media Area - DN Units	m ²	621	816	1047	1233	1437	1899	2300	3000	3400	3700	4700	5800	6500	7200

* available in 60 and 50 cycle to suit

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Experts in Domestic & Industrial Wastewater Treatment

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