



## Large Diameter RBCs

Biological Treatment Stage for Medium to Large Sized Wastewater Treatment Plants



*KEE Process Large RBC Modular System in France.*

### 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 1500 persons equivalent within a single module.
- Larger flows catered for by installation of multiple RBCs.
- Low specific media surface area to volume density range for carbonaceous BOD removal.
- High specific media surface area to volume density range for nitrification.
- Unique Managed Flow technology incorporated as standard.



*KEE Process Multiple 3.66m Diameter System in Mexico.*

### Applications

- Biological treatment stage for medium to large 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 (shown overleaf) - an economical, flexible and adaptable wastewater treatment package.

## Configuration

- Single RBC unit can be configured with any one or combination of specific media surface area to volume density.
- Multiple RBC units can be tailored to suit process requirements.

## 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.
- 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 709 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 BS4-1:1999, BS EN 10056-1:1999, BS EN 100056-2:1993 and BS EN 10210. Protected by galvanising to BS EN ISO 1461:1999.
- Designed for a 30 year fatigue life.

## Specification/Design

*Sectional Glassfibre Reinforced Polyester (GRP) removable covers.*

*Steelwork hot dip galvanised to BS EN ISO 1461:1999*

*Easy access to bearings and gearbox/motor for maintenance.*

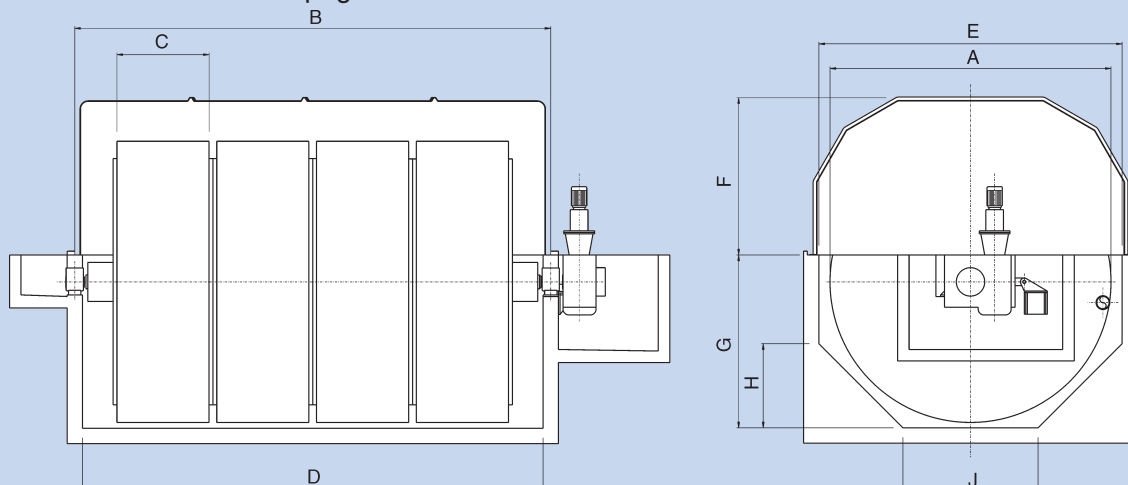
*Compliance with Health and Safety Regulations.*

*Installation in steel or in situ concrete tanks.*

*Manufactured under BS EN ISO 9001 Quality Management System accreditation.*

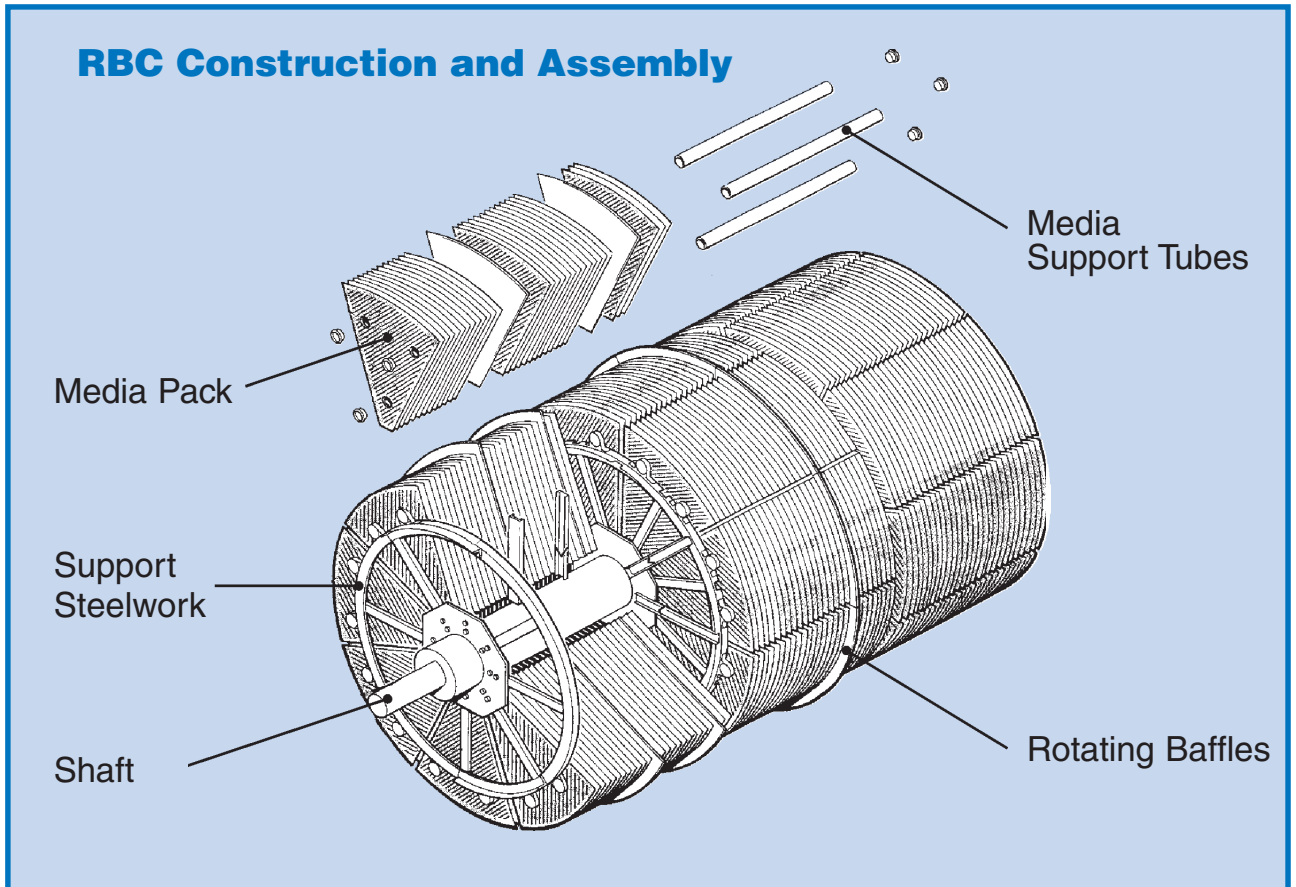
## Large Diameter RBCs

**Note:** See table on back page for dimensions



## 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.
- 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.

## Large Diameter RBCs

See table below for specific dimensions

**NOTE:**

The Dimensions (below) and Media Areas are for guidance only. Covers and Special Features such as baffles, recycle systems, bucket feed etc. may change the dimensions. Diameters are standard. Rotor lengths are based upon a standard mechanical design, formulated using standard Media Pack lengths. This enables media densities to be kept at either 150 or 180 m<sup>2</sup>/m<sup>3</sup>, or mixed as required to suit specific applications. All dimensions are supplied for budgetary guidance only - consult KEE Process for guidance on specific applications.

		KEE RBC DIAMETERS											
		2.35M		3.00M		3.25M		3.66M		4.25M		4.5M	
Media Diameter - A	mm	2350		3000		3250		3660		These RBCs are made to order Please contact KEE for details		These RBCs are made to order Please contact KEE for details	
Media Width - C	mm	1200		1200		1200		1200					
Width - E	mm	2500		3150		3450		3950					
Height - F	mm	1050		1050		1800		1750					
Depth - G	mm	1450		2250		2075		2250					
Sidewall Chamfer - H	mm	785		965		1010		1095					
Base Width - J	mm	1030		1360		1430		1760					
		2.35 Metre Diameter RBCs						3.00 Metre Diameter RBCs					
Area	m <sup>2</sup>	2035	2442	2715	3258	3395	4073	4500	5400	5625	6750	6750	8100
Length - B	mm	4500	4500	5800	5800	7100	7100	5800	5800	7100	7100	8400	8400
Unit Length - D	mm	4700	4700	5850	5850	7150	7150	5850	5850	7150	7150	8450	8450
Density	m <sup>2</sup> /m <sup>3</sup>	150	180	150	180	150	180	150	180	150	180	150	180
Motor Rating *	kW	0.37	0.37	0.55	0.55	0.75	0.75	0.75	0.75	1.10	1.10	1.10	2.20
No. of Banks		3	3	4	4	5	5	4	4	5	5	6	6
		3.20 Metre Diameter RBCs						3.66 Metre Diameter RBCs					
Area	m <sup>2</sup>	5065	6076	6330	7596	7595	9115	6765	8120	8460	10150	10150	12180
Length - B	mm	5800	5800	7100	7100	8400	8400	5800	5800	7100	7100	8400	8400
Unit Length - D	mm	6000	6000	7300	7300	8600	8600	6000	6000	7300	7300	8450	8600
Density	m <sup>2</sup> /m <sup>3</sup>	150	180	150	180	150	180	150	180	150	180	150	180
Motor Rating *	kW	0.75	1.10	1.10	2.20	2.20	2.20	2.20	2.20	3.00	3.00	3.00	3.00
No. of Banks		4	4	5	5	6	6	4	4	5	5	6	6

\* available in 60 and 50 cycle to suit

*Authorized Agent, USA, Caribbean and Latin America*

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