



BIOCOMBI

Compact plants for small communities



OPERATING PRINCIPLE

A process cycle ideal for small-to-medium installations comprises, screening (filter-grilles), primary sedimentation with a sludge digestion chamber (Imhoff), biological wastewater treatment with RBC and secondary sludge separation via cloth filter. In compact bio-combi installations offered by MITA Water Technologies, the biological treatment is achieved by means of a partially submerged roller-contactor upon which forms the mass of biological slime: this is created by the growth of micro-organisms which derive their nutrients from the colloids and substances dissolved in the wastewater.

MITA Water Technologies bio-combi series installations do not need final settling tanks; their place is taken by a cloth filter, essentially comprising a horizontal drum in perforated steel sheet covered with a special filter cloth and equipped with an appropriate removal system for the separated sludge.

Maintenance is significantly reduced in comparison to traditional plant types and it can be performed by non-specialist personnel. The biological wastewater treatment phase is achieved with a biodisk, comprising parallel polypropylene

disks fitted to a central shaft. The diameter varies according to the plant size, from 2,00 m to 2,40 m. The disks have 40% of their surface submerged in the water to be treated and represent an ideal support for the bacterial mass. The cloth filter replaces the secondary settling basin; moreover it ensures a high effluent quality even when both hydraulic and/or suspended solids loadings are variable. The biologically treated water can reach the discharge only via the filter cloth. Its surface acquires a progressively increasing sludge layer which causes an increase in pressure drops. A level sensor activates a pump which, via a suction system placed in contact with the drum, draws, from inside, the water necessary to back-wash the filter cloth. The sludge removed by the water is run back to the primary settling tank, if there is one, or elsewhere.

The filter cloth is fabricated using a free-fibre "Polstoff" synthetic material, composed of innumerable overlapped small fibres which provide a very high effluent quality.



KEY CHARACTERISTICS

- Disks are partially submerged (40%) in the liquid to be treated
- Several phases of treatment (biological treatment and sludge separation) are grouped together in a single tank
- Nominal capacity: from 100 to 800 equivalent inhabitants
- Process sludge removal with cloth filter
- Only one gearbox-motor set for movement of the biodisk and filter: the filter is firmly connected to the biodisk shaft
- Moving parts (disk and filter drum rotation) actioned by a motor-gearbox set with output power between 0,75 and 1,5 kW
- Supply includes basin in treated and painted carbon-steel with easily removable modular covers in FRP and an electric control panel with IP 55 protection
- Discharge concentrations compliant with current wastewater treatment standards.

ADVANTAGES

SECTORS OF APPLICATION

- Minimum energy consumption
- Reduced maintenance
- Easy access
- Reduced installation space requirements (compact construction)
- Little sensitivity to sudden variations in hydraulic and/or organic loads
- High operating safety
- Oxygen supply without aeration or diffusion systems
- No floating sludge problems
- Low installation costs
- Absence of odour nuisance or aerosols

- Pre-assembled plant, ready to be put into service, complete with electric control panel fitted on the unit which permit rapid installation and start-up.

- Small communities
- Tourist complexes and camping sites
- Construction sites
- Hotels
- Schools
- Motorway service areas



TECHNICAL DATA

Model	Surface area (m ²)	Discs diameter (m)	People equivalent (N)	Total load after primary (kgBOD ₅ /d)	Loading rate (gBOD ₅ /m ² xd)	Motor power (kW)	Consump. power (kW)	Filter TF2 (n)	Filter surface (m ²)	Pumps surface (kW)	Total dimensions (LxWxH) m	Weight (kg)
BC 5/2	500	2,00	100	4,5	9	0,75	0,4	1	2	0,6	3,85 x 2,40 x 2,30	1.900
BC 10/2	1.000	2,00	200	9,0	9	0,75	0,5	1	2	0,6	4,80 x 2,40 x 2,30	2.300
BC 15/2	1.500	2,00	300	13,5	9	0,75	0,6	1	2	0,6	5,75 x 2,40 x 2,30	2.700
BC 20/2	2.000	2,00	400	18,0	9	1,10	0,7	1	2	0,6	6,70 x 2,40 x 2,30	3.300
BC 25/2	2.500	2,00	500	22,5	9	1,10	0,8	1	2	0,6	7,65 x 2,40 x 2,30	4.100
BC 30/4	3.000	2,40	600	27,0	9	1,50	1,0	2	2 x 2	2 x 0,6	7,13 x 2,80 x 2,80	4.800
BC 35/4	3.400	2,40	680	30,6	9	1,50	1,1	2	2 x 2	2 x 0,6	7,60 x 2,80 x 2,80	5.300
BC 40/4	3.800	2,40	760	34,2	9	1,50	1,2	2	2 x 2	2 x 0,6	8,07 x 2,80 x 2,80	5.800
BC 45/4	4.200	2,40	840	37,8	9	1,50	1,3	2	2 x 2	2 x 0,6	8,54 x 2,80 x 2,80	6.300





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