

# COMPACT FILTER BIONUT2 - INSTALLATION ON SITE WITH GROUND WATER FROM 21 TO 200 INHABITANTS

## Bionut®

**SIMOP**  
EQUIPEMENTS POUR L'ENVIRONNEMENT

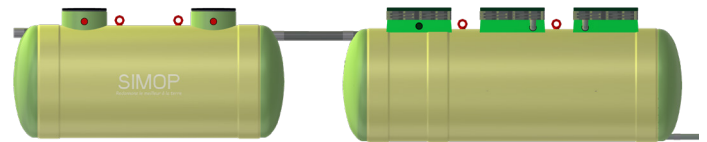
*Redonnons le meilleur à la terre*

6381

## 1 Description of the installation

The filters of the BIONUT2 MAX range are designed for the treatment of domestic wastewater, within the framework of grouped non-collective sanitation or small collective sanitation of 21 to 200 population equivalents. These devices support intermittent operation and do not require any power supply.

The treatment is based on the biological compact filter technique which reproduces the natural purification of water through the soil. These systems are composed of an all-water tank ensuring the pretreatment of the effluent and a compact filter based on hazelnut shells ensuring the biological treatment.



## NEW IN 2022

- **All-water tank upgrade:**
  - New pre-filter
  - DN160 on the whole range
  - Optional suction kit
- **Compact Filter Improvement:**
  - New more compact design based on Bionut2/6054 (<20EH)
  - Single material filter media (shells)
  - New trough flush with soft bellows
- **New accessories:**
  - Optimized lifting station
  - New distribution and collection manholes in PE and GRP
  - New extension shafts

## ADVANTAGES

- **An economic step:**
  - small footprint
  - autonomous system, no energy required
  - low maintenance cost
  - no work required when renewing the filter media, thanks to its total accessibility
- **An environmental system:**
  - 100% French product: innovation and design by SIMOP, hazelnut shells from France;
  - low carbon footprint;
  - no power consumption;
  - excellent purification performance in compliance with current regulations.
- **An ecological system:**
  - natural material: filtering mass made of hazelnut shells;
  - recycled and recyclable material: ecological valorisation of the shell which was a waste product of the food industry.
  - the shell will be sent to an approved center of composting at the end of the cycle.

## 2 Performance

BIONUT2 complies with the performances imposed by the decree of 21/07/2015:

Parameters	Regulatory thresholds
BOD5	35 mg/l or 60% yield
TSS	50% yield
COD	200 mg/L or 60% yield

These performances are achieved under normal conditions of use, care and maintenance in accordance with the prescriptions of the general manual and after a start-up period of 1 month.

## 3 Maintenance

- **All-water tank in reinforced PE or GRP** : classic and usual maintenance, empty the tank when the level of sludge reaches 50% of the total volume, see data sheet 6309.
- **GRP BIONUT2 filter** : easy and quick maintenance, refer to the general manual.

## 4 Operating principle

The treatment by the BIONUT2 system is done in three steps:

**1 - The pretreatment** the pretreatment is carried out by the all-water tank.

### 2 - Transfer of pre-treated water

Once the pre-treated water has left the all-water tank, it arrives in the trough flush integrated into the filter. This flush feeds the distribution ramp in order to optimize the distribution of the water on the filter surface.

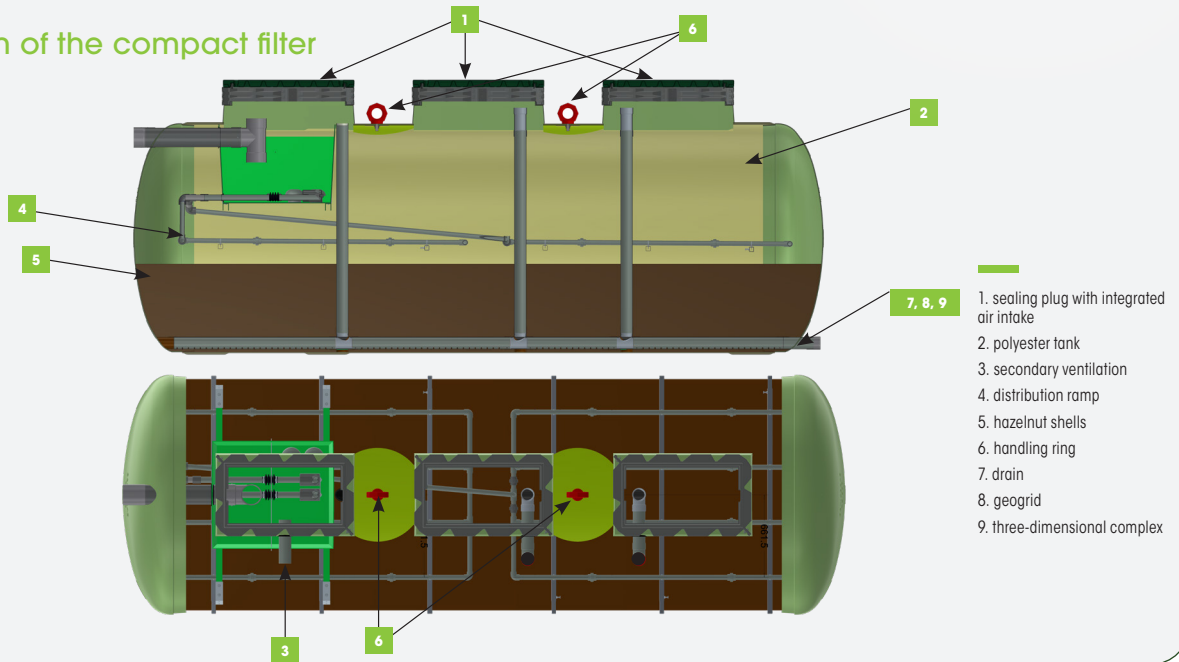
**3 - The biological treatment** the biological treatment is carried out by the compact filter based on hazelnut shells.

At the outlet of the trough flush, the water flows through the filtering mass made of hazelnut shells on which are fixed aerobic bacteria which will ensure the treatment of the water. The oxygen supply necessary for the development of the bacteria is done by a 100 mm ventilation.

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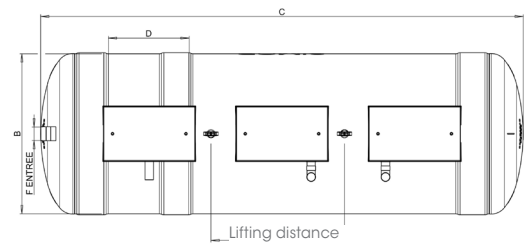
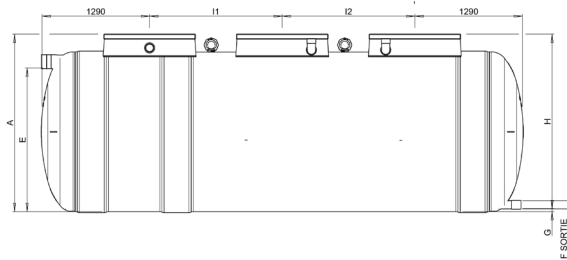


## Operation of the compact filter



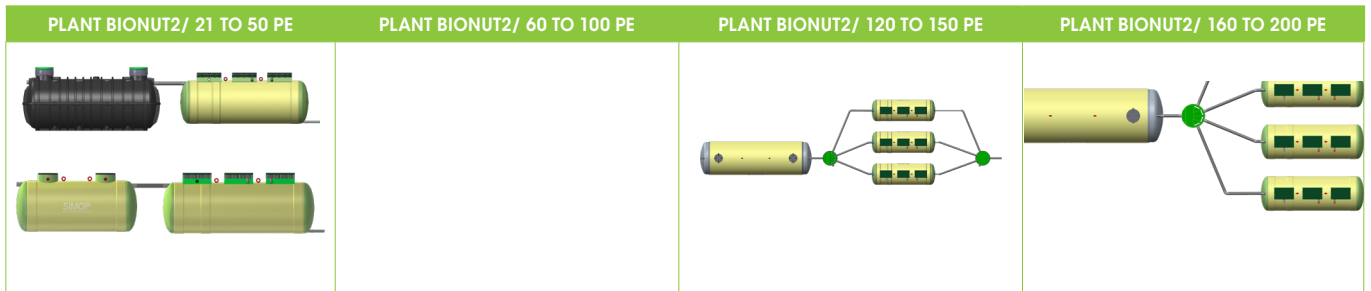
- 1. sealing plug with integrated air intake
- 2. polyester tank
- 3. secondary ventilation
- 4. distribution ramp
- 5. hazelnut shells
- 6. handling ring
- 7. drain
- 8. geogrid
- 9. three-dimensional complex

## Dimensions of the compact filter



Ref. Bionut2 filter	PE	Dimensions											
		A	B	C	D	Number of Man-holes (MH)	I1	I2	E	F inlet	F outlet	G	H
Mini/Maxi	Maximum height	ø outer shell max	Maximum length	Passage	Position of MH		INLET WATER LINE	ø flow	ø flow	OUTLET WATER LINE	Δ A-G		
21	13 to 21	2130	ø 1914	5777	916x466	3	1591	1591	1723	ø160	ø100	35	2095
25	22 to 25			6832			2118	2118					
30	26 to 30			8151			2778	2778					
35	31 to 35			9470			3437	3437					
40	36 to 40			10789			4097	4097					
45	41 to 45			12108			4756	4756					
50	46 to 50	13427	5416	5416									
		Composition											
60	51 to 60	2 x Bionut2/30											
70	61 to 70	2 x Bionut2/35											
80	71 to 80	2 x Bionut2/40											
90	81 to 90	2 x Bionut2/45											
100	91 to 100	2 x Bionut2/50											
120	101 to 120	3 x Bionut2/40											
135	121 to 135	3 x Bionut2/45											
150	136 to 150	3 x Bionut2/50											
160	151 to 160	4 x Bionut2/40											
180	161 to 180	4 x Bionut2/45											
200	181 to 200	4 x Bionut2/50											

# COMPACT FILTER BIONUT2 - INSTALLATION ON SITE WITH GROUND WATER FROM 21 TO 200 PEOPLE EQUIVALENT



Plant composition							
Reference	ALL-WATER TANK (AWT)	Filter	Number of tanks	Distributor	Collection chamber	Lifting station	Number of Charnut01*
Bionut2/6381/21	FTE2/6309/10	Bionut2/21	2				0
Bionut2/6381/25	FTE2/6309/12	Bionut2/25					1
Bionut2/6381/30	FTE3/6317/15	Bionut2/30					2
Bionut2/6381/35	FTE3/6317/17	Bionut2/35					3
Bionut2/6381/40	FTE3/6317/20	Bionut2/40					4
Bionut2/6381/45	FTE3/6317/20	Bionut2/45					5
Bionut2/6381/50	FTE3/6317/25	Bionut2/50	3	REP2/160 included	REC4/160 (option)	RELBIONUT-MAX1 (see data sheet 5304)	6
Bionut2/6381/60	FTE3/6317/30	2 x Bionut2/30					4
Bionut2/6381/70	FTE3/6317/35	2 x Bionut2/35					6
Bionut2/6381/80	FTE3/6317/40	2 x Bionut2/40					8
Bionut2/6381/90	FTE3/6317/40	2 x Bionut2/45					10
Bionut2/6381/100	FTE3/6317/45	2 x Bionut2/50					12
Bionut2/6381/120	FTE3/6317/55	3 x Bionut2/40	4	REP4/160 (option)			12
Bionut2/6381/135	FTE3/6317/65	3 x Bionut2/45					15
Bionut2/6381/150	FTE3/6317/70	3 x Bionut2/50					18
Bionut2/6381/160	FTE3/6317/80	4 x Bionut2/40	5	3xREP2/160 (option)	REP4/160 (option)		16
Bionut2/6381/180	FTE3/6317/90	4 x Bionut2/45					20
Bionut2/6381/200	FTE3/6317/90	4 x Bionut2/50					24

\* To facilitate the handling of the tank, the compact filter is delivered partially filled with hazelnut shells (so that the weight of the filter does not exceed 4T). The last layer is therefore delivered in a big bag of 800 kg (ref. of the Big Bag: CHARNUT01), to be emptied and put back on the surface of the filter.

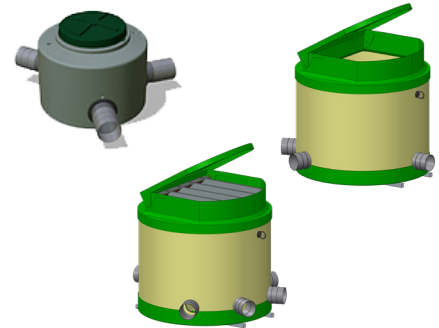
PE capacity	21	25	30	35	40	45	50
PLANT REFERENCE	BIONUT2/6381/21	BIONUT2/6381/25	BIONUT2/6381/30	BIONUT2/6381/35	BIONUT2/6381/40	BIONUT2/6381/45	BIONUT2/6381/50
NUMBER OF ENVELOPES	1 pit + 1 filter	1 pit + 1 filter	1 pit + 1 filter	1 pit + 1 filter	1 pit + 1 filter	1 pit + 1 filter	1 pit + 1 filter
Pit reference	FTE2/6309/10	FTE2/6309/12	FTE3/6317/15	FTE3/6317/17	FTE3/6317/20	FTE3/6317/20	FTE3/6317/25
PRIMARY TREATMENT	N° pit data sheet	6309	6309	6317	6317	6317	6317
	Useful volume (m)	10	12	15	17	20	25
	Height (inlet water line)	2085	2085	1710	1710	2110	2110
	Total length (mm)	3378	3928	6528	7288	5392	5392
	Total width (mm)	2490	2490	1914	1914	2314	2314
	Total height (mm)	2540	2540	2210	2210	2610	2610
	Filter reference	BIONUT2/21	BIONUT2/25	BIONUT2/30	BIONUT2/35	BIONUT2/40	BIONUT2/45
FILTER	Number of filters	1	1	1	1	1	1
	Useful surface (m)	10	12	15	17	20	25
	Height of useful massif (mm)	750	750	750	750	750	750
	Sizing (m <sup>2</sup> /PE)	0.51	0.51	0.51	0.51	0.51	0.51
	Total length (mm)	5777	6832	8151	9470	10789	12108
	Total width (mm)	1914	1914	1914	1914	1914	1914
	Total height (mm)	2130	2130	2130	2130	2130	2130

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## 5 Distribution and Collection chambers

Ref	Designation	Ø (mm)	Total height (mm)	Ø inlet / outlet (mm)
REP2/04/04	Manhole cover	400 x 400	400	100
REC2/02/13	Collection manhole	400 x 400	1300	100
REP2/160	Manhole cover	790	653.5	160
REP4/160 and REC4/160	Distribution and collection manhole without cover	1300	1077	160
optional: -REP4/160/CV -REP4/160/CVG -REC4/160/CV -REC4/160/CVG	CV: with green space cover CVG : with green space cover and anti-fall grid	1300	1066	160



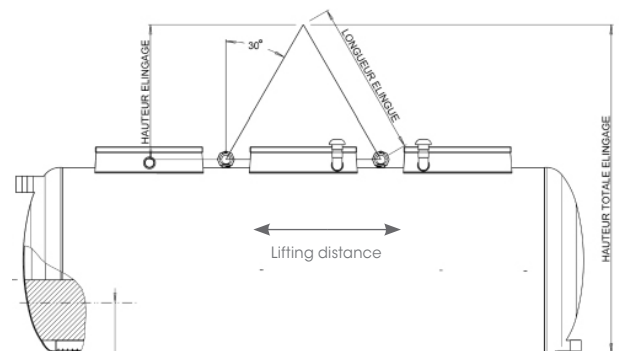
## 6 Other accessories and options

- RH2/6030 : extension shaft for all-water tanks in PE FTE2/6309, height 300mm. To be installed, lockable. 2 per tank.
- RH602 : extension shaft for all-water tanks in GRP FTE3/6317, height 250mm. To be screwed. 2 per tank.
- RH2/15/B2 : extension shaft for all-water tanks BIONUT2 from 21 to 50PE. 3 per filter.
- RH2/4031 : Screw-on extension shaft for REP2/160 manhole, Ø 400mm, height 300mm
- RH2/03/15 : Screw-on extension shaft Ø235 mm, height 150 mm (for REP2/04/04 and REC2/02/13)
- Speed frame 1900-2 and 1900-5 : frame for 2 and 5 berces.
- Emptying kit for the all-water tank : see data sheet 6317

## 7 Handling, installation and commissioning

### • Handling: :

Ref	FILTER WEIGHT (kg)	SLINGING HEIGHT (mm)	SLINGING LENGTH (mm)	TOTAL HEIGHT HANDLING (mm)	LIFTING DISTANCE (mm)
Bionut2/21	3500	1386	1600	3386	1600
Bionut2/25	3250	1738	2007	3671	2000
Bionut2/30	3220	2353	2717	4286	2500
Bionut2/35	3100	2734	3157	4667	3000
Bionut2/40	3080	2880	3326	4873	3000
Bionut2/45	2950	3495	4036	5488	3000
Bionut2/50	2950	3495	4036	5488	3000



### • Installation: :

Refer to the general manual. To facilitate the handling of the tank, the compact filter is delivered partially filled with hazelnut shells (so that the weight of the filter does not exceed 4T). The last layer is therefore delivered in a big bag of 800 kg (ref. of the Big Bag: CHARNUT01), to be emptied and put back on the surface of the filter.

Maximum backfill height: 30 cm on PE tanks (6309) and 50 cm on GRP tanks (Bionut2)

### • Commissioning:

Commissioning is an important operation to guarantee the correct operation of the system. It can be carried out by the user and/or a qualified professional and must be carried out according to the recommendations described in the general manual.

## 8 Guarantee

The tank is guaranteed for 10 years, if the installation conditions have been respected. The warranty period begins on the day of installation. The guarantee is not dependent on the existence of a maintenance contract. All guarantees are stipulated in the general manual.