





Residual concrete recycling



About us

GECO GmbH was founded in 1977 as a private owned business by Josef Schlusche († 2005). The company headquarters are located in Ketsch near Heidelberg.



Administrative building in Ketsch

Our customers:

Construction industry: Ready mix- and precast concrete plants, brick manufacturers **Environmental industry:** Sewage plants, garbage collectors and recyclers **General industry:** Foundries, paint manufacturers **Raw material producers:** sand and quarrying business

Our manufacturing range:

Waste concrete recycling plants:

Concrete reclaiming -- Grey water conveying -- Aggregate screening

Water treatment:

Filter presses and dewatering containers Flocculent dosing systems -- Neutralisation -- systems Clearing systems -- Pumps

Your defined goals and objectives:

are our challenge.

Tell us your needs.

We develop the ideas und address with you customised solutions

Fast implementation of the solution from one source.

Benefit from our long-time experience.

Give us a call, send us a fax or an e-mail.

We are naturally at your disposal for detailed advice.

Based on more than 30 years of experience in recycling installations we can develop and realise well-engineered concepts. The high reliability of our machines convinced well known customers world-wide.

FLOTMAT The residual concrete reclaimer General description of the operation procedure of a recycling plant

The FLOTMAT together with auxiliary equipment is used to separate waste green concrete into reusable components. Waste or rejected concrete can be brought to the FLOTMAT by truck mixers, concrete pumps, cleaning hoppers or other suitable skips. The machine separates the coarse particles (aggregates) from the fines, which flow out of the machine together with the wash water as grey water (mixture of water with fines < 0,2mm and cement).



FLOTMAT-03-KOMBI with basin higher than the ground.



 $\mathsf{FLOTMAT}\xspace{-15}\xspace{-15}$ with big feeding table for 2 truck mixers and one concrete pump.

The drain chute conveys sand to a container with fixed wheels.



Second washing chamber with adjustable PU paddles for self-cleaning.

Total recovery of the waste concrete is achieved as follows:

- A two stage washing process in the main and second washing chamber provides an optimal washing out, with a separation cut at 0,2 mm.
- An inclining dewatering vibration chute conveys the aggregates out of the FLOTMAT.
- The outflowing grey water is collected in tanks or basins equipped with agitators preventing the fines and the cement from settling and caking.
- Rugged submersible pumps convey the grey water back into production or if required to a water treatment system, clearing the water and if necessary even neutralising it.

The FLOTMAT series is manufactured in different sizes and designs. Thus an individual implementation into existing or new plant is possible at any time. Capacity variations: 1, 3, 8, 15 and 25 m³/h.

General procedure



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FLOTMAT – Waste concrete reclaimer

Variations of the series:

FLOTMAT- Vibro- S

with ascending vibration drain chute. Capacity: 1, 3, 8, 15 and 25 m^3/h

FLOTMAT-Kombi- Vibro- S

with ascending vibration drain chute and feeding wheel. Capacity: 1, 3, 8, 15 and 25 m³/h

The additional feeding wheel allows the taking up of waste concrete at ground level and therefore enables the cleaning of concrete pumps and other skips. Washing water coming from other channels is also picked up by the feeding wheel.

The discharge pipe for the cement water mixture may be connected to the left or right hand side of the FLOTMAT washing chamber.

Feeding tables may be mounted on the front end or to the left / right of the washing trough.



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FLOTMAT Waste green concrete reclaimer for precast concrete plants

Rugged, wear resistant concrete reclaimer for precast and paver plants. Based on the principle of counter current a separation between aggregates (0.2 - 32 mm) and grey water (mixture of water, cement and fines) is achieved. Both components can be reused for concrete production. Supplementary equipment such as pumps, agitators, level sensors is added to the system according to the specific layout conditions. This leads to a reliable and economic recycling plant with a capacity of 1, 3, or 8 m³/h specially developed for the precast and concrete paver industry.

Examples for the utilisation in precast concrete plants



FLOTMAT-03-Vibro with preseparator and vibration chute.



FLOTMAT-15-Kombi: filling from different sides.



Feeding table for the cleaning of the bucket.



Central washing place in a precast concrete plant.

The composition and positioning of the equipment is always perfectly adjusted to the space available. This allows smooth integration in existing or planned installations (short ways for material and accessibility).

FLOTMAT and FLOTMAT-Kombi the ideal series in the precast industry for solving your waste concrete problems at low cost with minimum maintenance.

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Precast concrete plants

Technical data FLOTMAT:

Туре	Waste con- crete through- put m ³ /h	drive kW	Material discharge height m	Rinsing water requirement m ³ /h	Outline dimensions m		
					Length	Width	Height
FLOTMAT-01-Vibro	1	0,75	0,95	0,32	3,10	1,10	1,33
FLOTMAT-01-Kombi*	1	0,75	0,95	0,32	3,80	1,70	1,40
FLOTMAT-03-Vibro	3	1,50	1,20	0,80	4,20	1,40	1,60
FLOTMAT-03-Kombi*	3	1,50	1,20	0,80	4,50	2,30	1,90
FLOTMAT-08-Vibro	8	4,00	1,65	1,90	4,70	2,00	2,30
FLOTMAT-08-Kombi*	8	4,00	1,65	1,90	6,50	3,20	2,70

* Capacity feeding wheel:

FLOTMAT 01: Solids or water 1m³/h, FLOTMAT 03: Solids or water 3m³/h,

FLOTMAT 08: Solids of water 5m³/h,

• Waste concrete can be fed into the trough from the front or from the left / right hand side.

FLOTMAT's special features:

- Optimal aggregate processing because of intensive dewatering during discharge.
- No compaction of material during conveying by using vibration technique.
- Main and second washing chamber.
- User friendly control system with display.
- Rugged, compact and wear resistant execution of machinery.
- During the start of operation extra high load of waste concrete possible.
- Low energy consumption.
- Separation cut at 0.2mm.

A mere **1.5kW** lead to a washing capacity of **3m³/h** and a discharge height of **1.2m** allowing the cleaning of **manufacturing halls**, **wheel borrows**, **concrete skips** as well as the stationary **mixer**. No additional equipment such as hydraulic elevators, screw conveyors etc. are needed.

Our product range includes:

- FLOTMAT waste concrete reclaimers with capacities ranging from 1 to 25m³/h.
- AQUACLEAN Water treatment plants with capacities from 7.5 to 100m³/h.
- ECOPRESS chamber filter presses.
- Metering station for flocculants.
- Neutralisation systems.
- Dewatering vibration chutes.
- Steel tanks and silos for water- and aggregate storing.
- Feeding wheels.
- Agitators.
- Submersible and high pressure pumps.
- Measuring and dosing equipment.
- Density measuring systems for grey water and air lever.
- Band-conveyor.
- SPS-control systems with keyboard and display.



FLOTMAT

Waste green concrete reclaimer for ready mixed concrete plants

Rugged, wear resistant concrete reclaimer for the ready mixed concrete industry. Based on the principle of counter current a separation between aggregates (0,2 - 32 mm and grey water (mixture of water, cement and fines) is achieved. Both components can be reused for concrete production. Supplementary equipment such as pumps, agitators, level sensors is added to the system according to the specific layout conditions. A modern SIEMENS SPS control unit operates the plant. This leads to a reliable and economic concrete reclaiming plant with processing capacities of 8, 15 or 25m³/h specially developed for the ready mixed concrete and mortar producers.

Examples for the utilisation in ready mixed concrete plants



FLOTMAT-15-Kombi Feeding wheel for the cleaning of concrete pumps.



FLOTMAT-25-Kombi Feeding table at ground level to clean the court.



FLOTMAT-15-Kombi Feeding table for 2 truck mixers including cleaning device.



Infeed chute Cleaning device for 4 truck mixers at the same time.

Truck mixers and concrete pumps can approach the installation by three sides according to the layout. For the case that more than 20 mixers have to be cleaned regularly, two FLOTMAT-15 can be used simultaneously. This would result in a very flexible setup and an optimal capacity utilisation.

FLOTMAT and FLOTMAT-Kombi are the ideal series for ready mixed concrete plants in order to solve your waste concrete problems at low cost with minimum maintenance.

FLOTMAT Ready mixed concrete plants

Technical data FLOTMAT:

Туре	Waste con- crete through- put m ³ /h	drive kW	Material- Discharge height m	Rinsing water requirement m ³ /h	Outline dimensions m		
					Length	Width	Height
FLOTMAT-08-Vibro	8	4,00	1,65	1,90	4,70	2,00	2,30
FLOTMAT-08-Kombi*	8	4,00	1,65	1,90	6,50	3,20	2,70
FLOTMAT-15-Vibro	15	4,00	1,80	2,40	4,70	2,30	2,40
FLOTMAT-15-Kombi*	15	4,00	1,80	2,40	7,00	3,80	2,90
FLOTMAT-25-Vibro	25	4,00	1,80	3,40	6,20	2,30	2,40
FLOTMAT-25-Kombi*	25	4,00	1,80	3,40	8,50	3,80	2,90

* Capacity feeding wheel FLOTMA-08 till FLOTMAT-25: Solids or water 5m3/h

- The discharge for the grey (wash out) water is 0.75 m (FLOTMAT-08 = 0,60m) over ground level.
- The upper edge of the feeding table suits truck mixers with its height of 1.4m over floor level.
- Up to 4 truck mixers can be washed out simultaneously.
- Waste concrete can be fed into the trough from the front or from the left / right hand side.

FLOTMAT's special features:

- Optimal aggregate processing because of intensive dewatering during discharge.
- No compaction of material during conveying by using vibration technique.
- Main and second washing chamber.
- User friendly control system with display.
- Rugged, compact and wear resistant execution of machinery.
- On start of operation extra high load of waste concrete possible.
- Low energy consumption.
- Separation cut at 0.2mm.

A mere **4 kW** lead to a washing capacity of **25m**³/**h** and a discharge height of **1.8m** allowing the cleaning of **manufacturing halls, wheel borrows, concrete skips** as well as stationary **mixers**. No additional equipment such as hydraulic elevators, screw conveyors etc. are necessary.

Our product range includes:

- FLOTMAT waste concrete reclaimers with capacities ranging from 1 to 25m³/h.
- AQUACLEAN Water treatment plants with capacities from 7.5 to 100m³/h.
- ECOPRESS chamber filter presses.
- Metering station for flocculants.
- Neutralisation systems.
- Dewatering vibration chutes.
- Steel tanks and silos for water and aggregate storing.
- Feeding wheels.
- Agitators.
- Submersible- and high pressure pumps.
- Measuring and dosing equipment.
- Density measuring systems for grey water and air lever.
- Band-conveyor.
- SPS-control systems with keyboard and display.



FLOTMAT-Kombi

The waste green concrete reclaimer with a feeding wheel

To clean concrete pumps and to collect water from the yard

Lifting objects to a certain height can be achieved by several methods. In this case waste green concrete from the cleaning of concrete pumps has to be lifted from approximately 25cm over ground level in the washing trough of the FLOTMAT. Different devices such as elevators, lifting equipment or screw conveyors are possible. The most cost-effective solution presents our feed-ing wheel. It suits ideally because of its dynamics, the minimum power required and its low wear.

Examples for the utilisation of the feeding wheel



FLOTMAT-15-Kombi with infeed to clean pumps.



FLOTMAT-15-Kombi with infeed at ground level to clean the yard.



Feeding wheel as stand alone system.



FLOTMAT-15-Kombi with feeding wheel and table.

The feeding wheel is integrated in the FLOTMAT-Kombi. The existing drive therefore also operates the feeding wheel. From an inlet at approximately 500- 600 mm below ground level waste concrete and wash- and rain/ cleaning water from the yard can be lifted into the washing trough of the FLOTMAT.

Special flexibility can be achieved by operating the feeding wheel as stand alone system. A separate drive (1,5kW) results in a lifting capacity of 5m³/h waste green concrete or water. The required feeding box can be mounted over or under ground level.

Feeding wheel

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Technical data FLOTMAT-Kombi:

Туре	Scooping capacity Solids or water m³/h	Outline dimensions m			
		Length with inlet	Width	Height	
FLOTMAT-01-Kombi	1	3,80	1,70	1,40	
FLOTMAT-03-Kombi	3	4,50	2,30	1,90	
FLOTMAT-08-Kombi	5	6,50	3,20	2,70	
FLOTMAT-15-Kombi	5	7,00	3,80	2,90	
FLOTMAT-25-Kombi	5	8,50	3,80	2,90	

Advantages of the feeding wheel at a glance:

- No extra drive is required because it is mounted onto the main shaft of the FLOTMAT, consequently only one drive is needed.
- The inlet of the feeding wheel is below ground level, therefore the cleaning of concrete pumps and the connection to a washing place is possible.
- Continuous low wear lifting process gives a well dosed and uninterrupted material feed into the FLOTMAT.
- Specially developed scoops make a simultaneous scooping of water and solids possible.
- Variable inlet designs permit an adaptation to local conditions.

Pump Discharge Conveyor



RECO Mobile Filter Press ECOPRESS in 20' container

The RECO container is the ideal solution for installations that quickly need to be relocated. The system is fully assembled and, if needed, it can be used at various locations, outdoors.



RECO - ECOPRESS



RECO - ECOPRESS Simple operation via touch panel



RECO - ECOPRESS with FLOTMAT-03-Kombi



RECO - ECOPRESS with peristaltic pump

- Checked and preset operation variables.
- Cheap transport because of standard outline dimensions.
- The system can be moved rapidly without any problems.
- Compact ready for use unit.
- Completely mounted couplings and connections for power supply and pipes for mains and grey water. After connection the plant is ready for operation.
- The container system is the perfect weather protection.
- For extreme weather conditions the container can be equipped with an extra isolation or a heating system.

The whole water treatment plant is unloaded and placed on properly prepared concrete slabs. For start up only the main power supply and the water pipe have to be connected.

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ECOPRESS Filter press for slurry compacting

In the concrete industry slurry results from waste concrete, washing out of elements as well as sawing, grinding and polishing. In sand washing plants slurry is produced as a by-product during the sand processing. After thickening the slurry in the AQUACLEAN water treatment system, the concentrated slurry is pumped to the ECOPRESS, which transforms it into filter cakes. For small quantities of slurry the ECON dewatering container is recommended.



 $\mathsf{ECOPRESS}:$ chamber filter press to make filter cake out of the sludge coming from the AQUACLEAN



Fully automatic filtering by drip proof design and monitoring of the filling



Filter cake with high degree of dewatering



Plate shaker

The ECOPRESS transforms the slurry into highly dewatered filter cakes, which can be disposed on landfills.

The ECOPRESS is equipped with a cake shaker, supporting the discharge of the chamber even if they tend to stick to the filter plates. As an option a core blow system operated by compressed air for better dewatering of the filter cloth prior to the opening of the press, can be ordered.

The ECOPRESS can be manufactured with filter plate sizes 630 x 630mm.

Corresponding to your needs the press can be equipped with 4 - 20 filter plates or more. The dimension and quantity of the press and the plates are determined according to the layout parameters of the plant.

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ECON

Container system for reclaiming of water and dewatering of slurry for the quarrying/ masonry industry and sewer plants

Via a suitable pump or by force of gravity slurry from the thickener (for example our water treatment system AQUACLEAN) is conveyed into the dewatering container. A specially selected several times reusable filter fleece is mounted on a supporting frame. This fleece retains the fines in the container. Filtrated water flows off, can be collected in a basin and is ready for being reused. The disposable slurry sediments in the container. By adding flocculent in the AQUACLEAN the settling time in the container can be reduced notably.



ECON with removed filter inlay.



ECON container to drain sludge; capacity: 1,5 - 9 m³.



ECON-container to tilt facilitates the drawdown.



Efficient solution in a concrete stone plant. Alternate filling of two ECON containers allows an additional thickening of the sludge.

- The container outline dimensions equal those of standard skips. Therefore it can be transported by any truck for this purpose.
- Various Capacities ranging from: 1,5 9 m³ filling volume.
- Dewatering by force of gravity saves energy.
- The filter inlay support frame can removed, making the maintenance and cleaning of the reusable filter cloth very easy.

The careful selected filter inlays adapted to different materials guarantee a long durability of the ECON. In the case of low waste, the ECON stays efficient as there are no energy costs and the expenses for the sludge disposal can be reduced.

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AQUACLEAN Water treatment system to clarify grey water

The plant design is developed according to the analysis of the layout data. The amount of wash water, solids content and components are determined. These data are used to define the procedure and the required dimensions of the plant. Generally a preseparation of the solids (aggregates > 0,2mm) by using our FLOTMAT system is highly recommended. This ensures that only fines < 0,2mm or colour pigments are transported into the water treatment system. In the **AQUACLEAN** grey water is clarified and solids are separated from the water. The resulting green water can be returned to production. The settled slurry also can be returned to production or pumped towards our filter press **ECOPRESS**.



Water treatment silo AQUACLEAN and chamber filter press ECOPRESS.



Flocculent dosing system in order to achieve a faster set-

tling of fines (e.g. colour pigments) which leads to a higher

through put capacity.

Water treatment silo AQUACLEAN with ECOPRESS.



FLOTMAT with AQUACLEAN and clear water silos.

The plants can be manufactured with tank volumes ranging from $7,5 - 100 \text{ m}^3/\text{h}$. Important additional equipments are: flocculent dosing systems, clear water tanks, sludge pumps and neutralisation systems.

AQUACLEAN

Flow diagram: Waste concrete recycling plant FLOTMAT with AQUACLEAN water treatment system, slurry compacting by filter press ECOPRESS and neutralisation system.



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