

Concrete recycling systems from Liebherr



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To protect the environment: concrete recycling plant from Liebherr

Every day, the production of concrete means that quite large amounts of residual concrete and also cleaning water from mixing plant and truck mixers must be processed. These residues must not be allowed to impose a burden on the environment. Liebherr has the ideal solution to all these tasks.

1

Is concrete recycling necessary?

Concrete recycling systems process the residual concrete so that all the constituents can be re-used, and the environment therefore incurs no additional burden at all.

2

The screw system

This is an extremely compact unit that can be supplied in either stationary or mobile form.

3

The trough system

This system uses a particularly high water volume and is therefore particularly suitable for mortar recycling.

4

Equipment and accessories

Liebherr supplies both systems in a wide range of versions, for instance with different loading methods, special separating devices or additional technical measuring equipment.



1 Is concrete recycling necessary?



Recycling residual concrete from production plant and truck mixers has a great many advantages.

One of the most important of these is avoiding any burden on the environment. Dumping residual concrete is not only unsightly, but may also harm the environment and the ground water. Recultivating these concrete dumps later, after they have hardened, is an expensive matter and calls for the use of heavy breaking and crushing equipment. In many countries, this method of disposing of unwanted concrete is now forbidden by law. A far better solution is to use a Liebherr concrete recycling plant to separate the constituents before they are fully hardened.

Since everything can be re-used, both material and process water are saved when new concrete is produced. The residual water from recycling can easily be returned to the production process.

The gantry used to wash out truck mixers can also be supplied with water recovered in this way.

Sand and gravel are washed out cleanly and re-used as production aggregates.

The remaining water containing cement is collected in a vat and maintained in suspension by an agitator. A proportion of this water can be returned to the concrete mixer without any reduction in the quality of the finished product.



Washed-out material

Residual water

2

The screw system

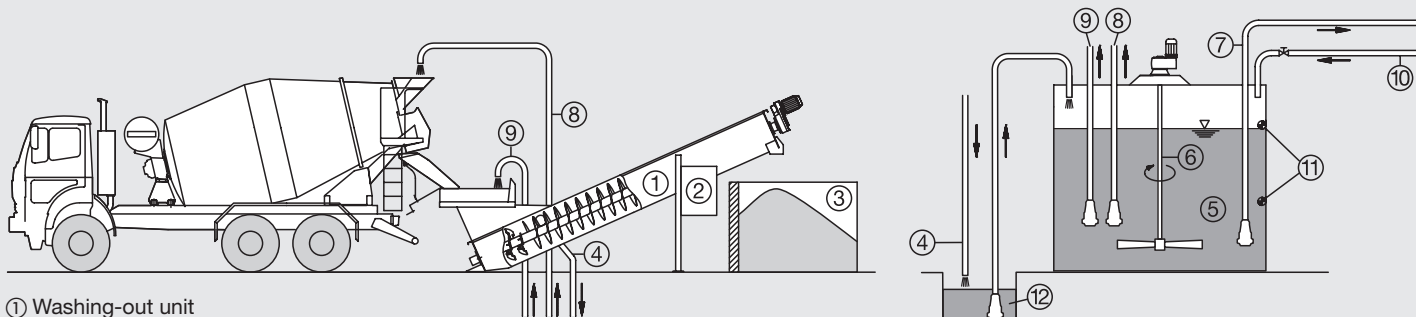
Type LRS concrete recycling plant is supplied in three sizes. All these units are compact in layout and therefore occupy very little space where they are set up. The screw is located at a predetermined spacing in the housing, so that a bed of material is built up and unnecessary wear is effectively avoided. The screw shaft runs in maintenance-free bearings.

The loading hopper is specially shaped so that it can be filled from various angles from one or two truck mixers. It is also designed to prevent accidental overfilling. The discharge height permits a generous storage volume.

The plant has a screen cut down to 0.25 mm or below.

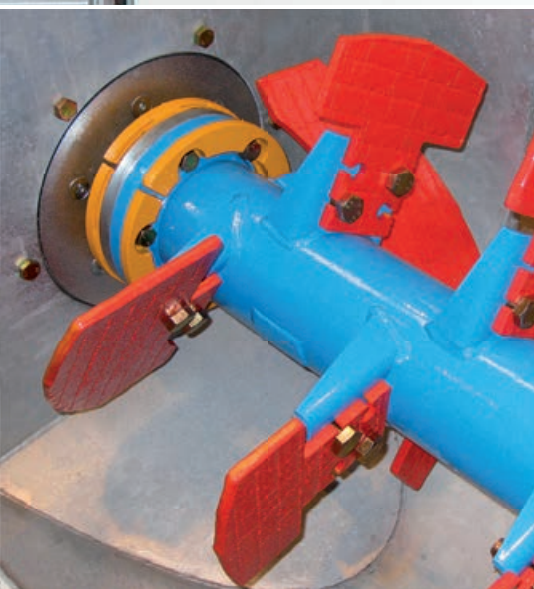


LRS screw-system concrete recycling plant



- ① Washing-out unit
- ② SPS control system
- ③ Mixed gravel container
- ④ Overflow for water containing solids
- ⑤ Residual water vat
- ⑥ Agitator
- ⑦ Batching line to water weigher
- ⑧ Washing-out line to truck mixer gantry
- ⑨ Washing-out line to loading hopper
- ⑩ Feed water
- ⑪ Level-sensing switch for feed water

	LRS 606	LRS 708	LRS 806
Length of screw (mm)	6000	6250	8500
Screw diameter (mm)	600	800	600
Drive motor rating (kW)	5,5	9,5	9,5
Solids discharge height (mm)	2200	2300	3200
Diameter of loading hopper (mm)	Ø 1900	Ø 1900	Ø 1900
Truck mixer discharge points	1 – 2	1 – 2	1 – 2
Throughput (cu. m/h)	app. 12	app. 22	app. 12
Size of residual water vat	Project-related; depends on number of truck mixers and concrete pumps		
Screen cut (mm)	0,25	0,25	0,25
Particle size of solids (mm)	up to 35	up to 35	up to 35



High wear-resistant washing-out paddles



Heating (optional) and central lubrication system



Chute for shovel loaders (optional)

3 The trough system

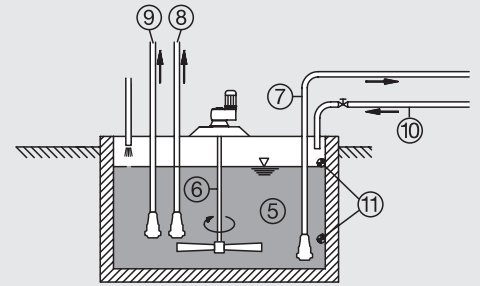
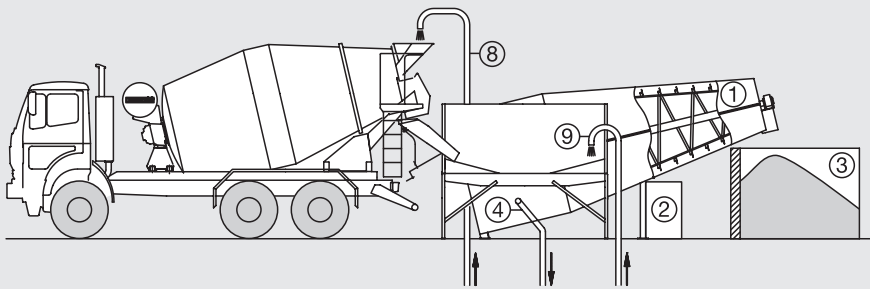
Type LRT concrete recycling plant is also supplied in two sizes. The trough pattern unit holds a particularly high volume of wash water, so that larger quantities of material can be added at shorter intervals.

Here too the screw is located at a predetermined spacing in the housing, so that a bed of material is built up to prevent wear. The broad loading hopper can be filled from two truck mixers at the same time. The discharge height permits a generous storage volume.

The plant has a screen cut down to 0.25 mm or below. Versions for winter operation can be supplied on request.



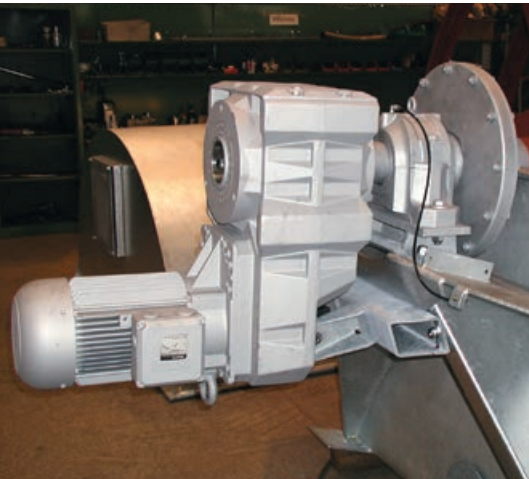
LRT trough-system concrete recycling plant



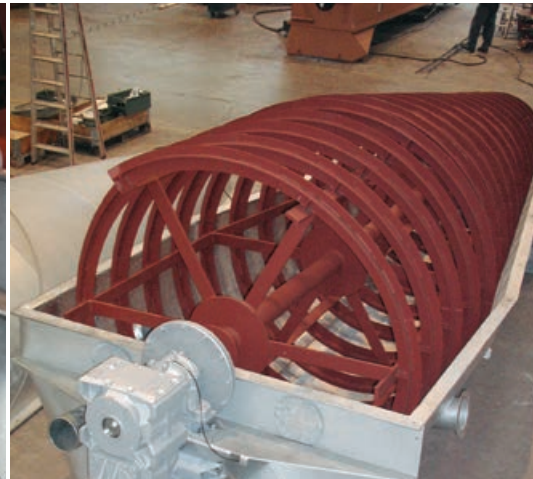
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- ⑪ Level-sensing switch for feed water



	LRT 422	LRT 622
Length of trough (mm)	4000	6000
Trough diameter (mm)	2200	2200
Drive motor rating (kW)	7,5	11
Solids discharge height (mm)	1700	2000
Diameter of loading hopper (mm)	1100 x 3000	
Truck mixer discharge points (St.)	1 – 2	1 – 2
Throughput (cu. m/h)	app. 10	app. 20
Size of residual water vat	Project-related; depends on number of truck mixers and concrete pumps	
Screen cut (mm)	0,25	0,25
Particle size of solids (mm)	up to 35	up to 35



A fully enclosed, long-life drive system



The conical areas of the washing-out spirals have raised edges for higher performance



LRT 422

4

Equipment and accessories

Buffer loader

If a whole series of truck mixers need to discharge residual concrete within a short time, Liebherr's galvanized buffer loader avoids bottlenecks. It is of generous size, so that up to six truck mixers can discharge material at the same time.



Conveyor

Concrete pumps cannot discharge residual concrete or cleaning water into the regular truck-mixer hopper because of the low discharge point on the vehicle. Liebherr therefore supplies a low-level loading hopper with conveyor. Material can then be discharged by the concrete pump and transferred to the recycling plant without difficulty.

Sand and gravel separation

After recovery, the material can be conveyed directly to a downstream screening unit for further separation.

Density measurement

An optional density measuring system can be supplied. It displays density information or, if residual water is used, can carry out the necessary adjustments at the mixing system.

The hydro-cyclone

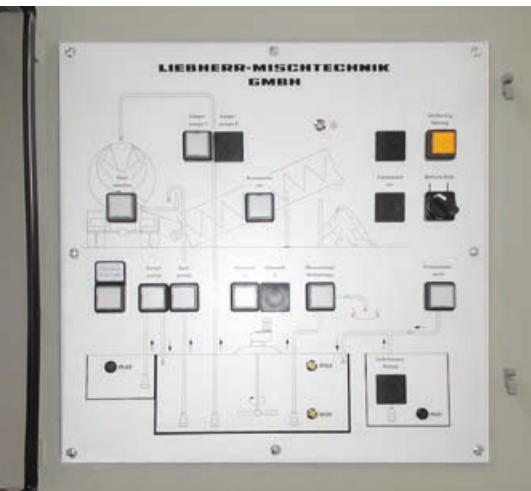
A further optional accessory is the hydro-cyclone separator. It generates a high centrifugal force that filters the bulk of the suspended particles out of the water and lowers its solids content.



Conveyor with loading hopper



Separation of sand and gravel



Control panel



Residual water tank with agitator and pumps.
Option: raised tank



Hydro-cyclone

More examples of recycling systems:



Mobile recycling unit

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Subject to technical modifications.

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