

Marti Technics Ltd.

Plant Engineering Stone & Earthworks
Gravel processing plant in Kirchberg



Dosage and loading unit

The products are stored in component silos and supplied to the loading unit via dosage units. The loading capacity is 800 t/h. A 2-deck sieving machine optimally after washes the product. Depending on the market product a flow plate mixer is activated. The entire accounting and customer service operations are carried out via a SAP interface based on specifications by Holcim (Schweiz) AG.

Wastewater purification plant

The wastewater from the pre-washing plant (400 m³/h) and from the gravel works (460 m³/h) is purified in the wastewater plant and supplied to a large process water tank (750 m³). The sludge (55 t/h particulate matter), which occurs in the wastewater purification plant is dehydrated with two chamber filter presses.

Expansion options

In planning the plant, options were applied for economic reasons. Additional process steps or special machines can be retrofitted and integrated in the existing plant at any time. Hence, the plant is also equipped for future and enhanced requirements.

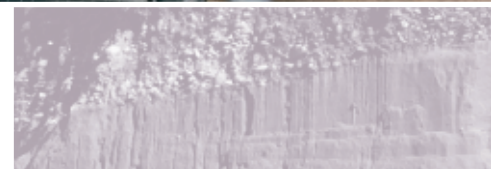


Marti Technics Ltd.
Plant Engineering Stone & Earthworks

Technikumstrasse 1
CH-6048 Horw

Fon +41 41 349 40 20
Fax +41 41 349 40 21

info@martitechnik.ch
www.martitechnik.ch



Gravel processing plant in Kirchberg

Client Holcim Kies und Beton AG, CH-9533 Kirchberg
 Contractor Marti Technics Ltd.
 Plant Engineering Stone & Earthworks
 Value of order CHF 13 mn
 Drawn up 2007/2008



Services provided by Marti Technics Ltd. Plant Engineering Stone & Earthworks

Project development, planning and execution of the entire gravel processing plant in Kirchberg.

The plant comprises 9 main units

- Feeding and pre-crushing unit
- Scherrer conveyor belt system with releasing unit
- Pre-washing unit
- Primary material dump and plant charging
- Round material processing
- Crusher and chip processing
- Dosage unit
- Loading unit
- Wastewater purification plant

Technical data

Gravel processing plant

- Charging capacity ex feeding unit 400 t/h
- Plant loading capacity 340 t/h
- Crusher output 100 t/h
- Loading capacity 800 t/h
- Water circuit 1000 m³/h
- Installed capacity 3500 kW

Control system and electrical installation

- Fully automatic plant control system from charging to loading
- State-of-the-art dosage control for the sale of individual components and mixtures consisting of the following products: 0/2, 2/4, 4/8, 8/11, 8/16, 11/16, 16/22, 13/32, 32/45

processed in a sand screw including fine-grained sand recovery in the form of a cyclone installation. The > 4 mm grain is washed in a sword washing machine and subsequently again added to the dehydrated sand. The washed primary material is subsequently stored temporarily on a large stockpile.

Primary material dump and plant charging

The pre-washed and desludged gravel/sand mixture of 0.063 – 90 mm is transported from the primary material dump to the gravel works through the existing gully. The charging capacity of the gravel works charging amounts to 300 – 360 t/h.

Round material processing

In order to produce the end products (0/4, 4/8, 4/32, 8/16, 16/32, 32/45, 45/63) according to standards, but also to process the greatly varying primary material composition, special processing technologies are used. For example, a free-fall classification tank is used, which, even in greatly varying sand composition of the primary material, can always produce a controlled sand (i.e. according to a default grading curve).

Crusher and chip processing

The > 45 mm material (oversized grain) is temporarily stored in crusher silos. From these silos, the material arrives in a impact crusher (reversible), where it is crushed and supplied to the chip-processing unit. Alternatively, the > 4 mm crushed grain can be returned to an additional crusher silo. From this silo, the material is fed into a vertical impact crusher. A large portion of crushed sand can be obtained in this process step. The use of these two crushers guarantees high flexibility in the chip and sand production, allowing the production of standard-conforming products at any time. The two crushers charge the chip processing unit or alternatively it is charged by an external feeding unit. The desired crushed grains (0/2, 2/4, 4/8, 8/11, 11/16, 16/22) are sieved using two elliptical sieving machines. The crushed sand is classified in a sizer on heated and directly excited sieving elements. All sources of dust in the gravel works are captured and actively suctioned off. The loaded air is subsequently purified in a centrally operated dust extraction system.

Plant description

Feeding and pre-crushing unit

The primary material (charging size: 0/300/1000 mm) is supplied to the feeding unit with a wheel loader and pre-classified using a roller table screen and the portion of > 90 mm is subsequently crushed with a jaw crusher. The pre-classified and pre-crushed material is then transferred to the conveyor belt system.

Scherrer conveyor belt system with releasing unit

The conveyor belt system with a length of 700 metres conveys the material to the pre-washing unit. Through an adjustment, the pre-washing unit or the loading unit/ material storage of Scherrer can be optionally charged.

Pre-washing unit

The pre-washing unit has a charging capacity of 400 t/h. Initially, the clay-containing primary material is separated on a 4 mm sieving machine. The sand of 0/4 mm is