

Marti Technics Ltd.

Plant Engineering Stone & Earthworks
Modernisation of gravel processing plant «Enge»
with silo installation



Control unit

A control system with touch panel permits fully automatic operation of the plant. The control unit enables, among other things, the choice of different crusher programmes. The desired grit is thus produced. The gravel processing plant, loading unit and feeding of the open-air grit silos can be operated from the firmly installed control panel in the concrete mixing plant.



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Technikumstrasse 1
CH-6048 Horw

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

info@martitechnik.ch
www.martitechnik.ch



Modernisation of gravel processing plant «Enge» with silo installation

Client Kies AG Zurzach-Beringen, CH-8222 Beringen
 Contractor Marti Technics Ltd.
 Plant Engineering Stone & Earthworks
 Value of order CHF 6 mn
 Drawn up 2008 / 2009



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

Design, planning and execution of the complete project: «Modernisation of gravel processing plant with silo installation».

The plant consists of the following main components

- Feeding and pre-crushing unit
- Round material and grit processing
- Crusher and grit side
- Loading unit and open-air grit silos
- Water treatment plant
- Control unit

Technical Data

Gravel plant

■ Plant loading capacity	120 t/h
■ Round material processing	120 t/h
■ Crushed material processing	80 t/h
■ Total installed capacity	900 kW

Control system and electrical installation

- Fully automatic control system
 Manufactured by Marti Technics Ltd.

Plant description

Feeding and pre-crushing unit

The raw material originates from the gravel pit located immediately adjacent to the plant. The material is conveyed from a feed hopper to the pre-screening unit, where the stones > 100 mm are pre-crushed by an impact crusher. The pre-crushed raw material is then transported by a conveyor system to the gravel processing plant.

Round material and grit processing

The first elliptical sieving machine separates the grit and oversized material from the remaining material. The grit is fed directly into the grit screw, where it is washed and passed on to a dewatering screen. After dewatering, the grit is fed into the component silos. The 4 – 63 mm material is transported by conveyor belts to the log washer, in which the gravel is cleaned with the aid of two logs. Subsequently the round components 4/8, 8/16, 16/32 and 32/45 are produced by two further elliptical sieving machines. If required, instead

of the component silos the excess components can be conveyed to the crusher silos.

Crusher and grit side

The graded oversized grit > 63 mm from the elliptical sieving machine is conveyed to an impact crusher, which produces mainly coarse grits. The grit size 32 – 45 mm and returned round components are pulverised in a vertical impact crusher to crushed sand and grit. The crushed material is taken by conveyor belt and elevator to the first screening on the chip side. On the first elliptical sieving machine on the chip side the oversized grit and components < 8 mm are separated from the remaining material. With a further elliptical sieving machine and sizer, the grit and chips are graded to 0/2, 2/4, 4/8, 8/11 and 11/16. These are then conveyed to the component silos provided.

Loading and open-air grit silos

From the grit silos in the gravel processing plant the components can be conveyed either to the truck loading unit or to the open-air grit silos. The open-air grit silos serve as a pre-batching bin for the asphalt plant located at the same site, which can be supplied with grit sizes without the need for road transport.

Water treatment plant

The contaminated water accumulating in the round material processing is collected in a pump vessel and conveyed by a solids pump to a hydrocyclone. The cyclone separates the fine parts > 63 µm which are added to the round grit. The remaining water including the settleable solids is pumped to the vertical clarifier, where the water is separated from the sludge with the aid of flocculation agents. The clarified water overflows into the process water tank and is returned to the water cycle of the gravel processing plant via the process water pump.

The sludge settled in the vertical clarifier is let off into the sludge buffer vessels directly below the clarifying tower. From this buffer tank equipped with stirrers the sludge is pumped into the sludge pond of the gravel pit.