



## Marti Technics Ltd.

Plant Engineering Stone & Earthworks

Kieswerk Untervaz AG «Plant Optimisation 2005»

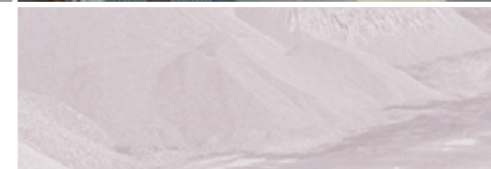


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# Kieswerk Untervaz AG

Client Kieswerk Untervaz AG, CH-7204 Untervaz  
 Sub-contractor Marti Technics Ltd.  
 Plant Engineering Stone & Earthworks  
 Value of order CHF 5 000 000.00  
 Drawn up 2005



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

Project development, planning and execution of the entire «Plant Optimisation 2005».

### The plant comprises of 7 main units

- Plant charging
- Round material processing
- Crusher
- Crushed material processing
- Dust extraction
- Water management
- Dosage and loading unit (existing)

## Technical data

### Processing plant

- Charging capacity of the plant 250 t/hr
- Round material processing 250 t/hr
- Crushed material processing 200 t/hr
- Fresh water consumption 180 m<sup>3</sup>/hr
- Water circulation (mixture quantity) 500 m<sup>3</sup>/hr
- Installed capacity 1.65 MW

### Control system and electrical installation

- Fully automatic plant control, manufactured by Marti Technics Ltd.

# «Plant Optimisation 2005»

## Crusher concept

A fine-grain jaw crusher reduces the 70 – 170 mm oversized grain to 0 – 70 mm. This is operated at all times with a filled access funnel in order to maximise grain cubicity. The other crusher levels and crushed sand production are handled by two cone crushers.

## Crusher material processing and dust extraction

The crushed material is graded on a sizer to enable surplus components to be dry re-crushed in the tertiary crusher. The desired 4/8, 8/11, 11/16 and 16/22 mm crushed grains are hosed down and re-graded on two conventional circular vibration sieving machines. The 0/4 mm crushed sand is graded on heated, directly agitated sieving elements at 0.25 and 2 mm. All dust sources in the gravel plant are identified and actively vacuumed. The affected air is then cleaned in a central dust extraction plant.

## Buildings

Most of the processing equipment was positioned in the existing building. A new annex had to be built only for the jaw crusher and a sieving machine. The steel construction was completed in a deflection-resistant frame and the special flooring in the gravel plant (asphalted corrugated steel sheet) characterise the appearance of the building interior – but impeded dismantling and assembly work. A new goods and personnel lift was delivered and installed by Marti Technics Ltd.

## Controls

A plant control system with two touch panels permits fully automatic plant operation. An energy management system monitors electricity surges throughout the complex and, if activated, switches off the individual crushers consecutively. Many customer requirements for visualisation and applications were addressed.

## Plant description

### Plant charging and pre-sieving

The base material is obtained from a flooded gravel pit and deposited temporarily in a base material stockpile. From here the material is conveyed to the gravel plant at a consistent rate. The sand and oversized grain is sifted on an elliptical sieving machine.

### Preparation of rounded material and sand

The following round components can be formed: 0/0.8, 0.8/4, 4/8, 8/16, 16/32, 32/50 and 50/70 mm. 0/4 mm natural sand is divided into 0/0.8 mm fine-grain sand and 0.8/4 mm rough-grain sand. These can be dosed together as required. A sand centrifuge dehydrates the sand to a residual dampness of less than 8%.

### Removal of organic material

Bulk wood > 32 mm is pneumatically separated using an air classifier (manufactured by Marti Technics Ltd.). Lightweight materials in the 4 – 32 mm grains are hydraulically removed using a jigging machine.