Sampling station of solid alternative fuels (SAF) for the project – New plant crushing "O" category waste, Ecorec 2.0

Customer: Holcim Czech Republic, Ecorec Česko, spol. s r.o.
Realization: March 2012

Z 5645

Customer's requirement
The customer required designing and delivery of the sampling station for the project Ecorec 2.0. It concerns sampling of sorted crushed waste – light material. They required so that a 64 liter coarse sample would be taken in the period of 8 hours and then a 4 liter representative (final) sample would be prepared of the coarse one.

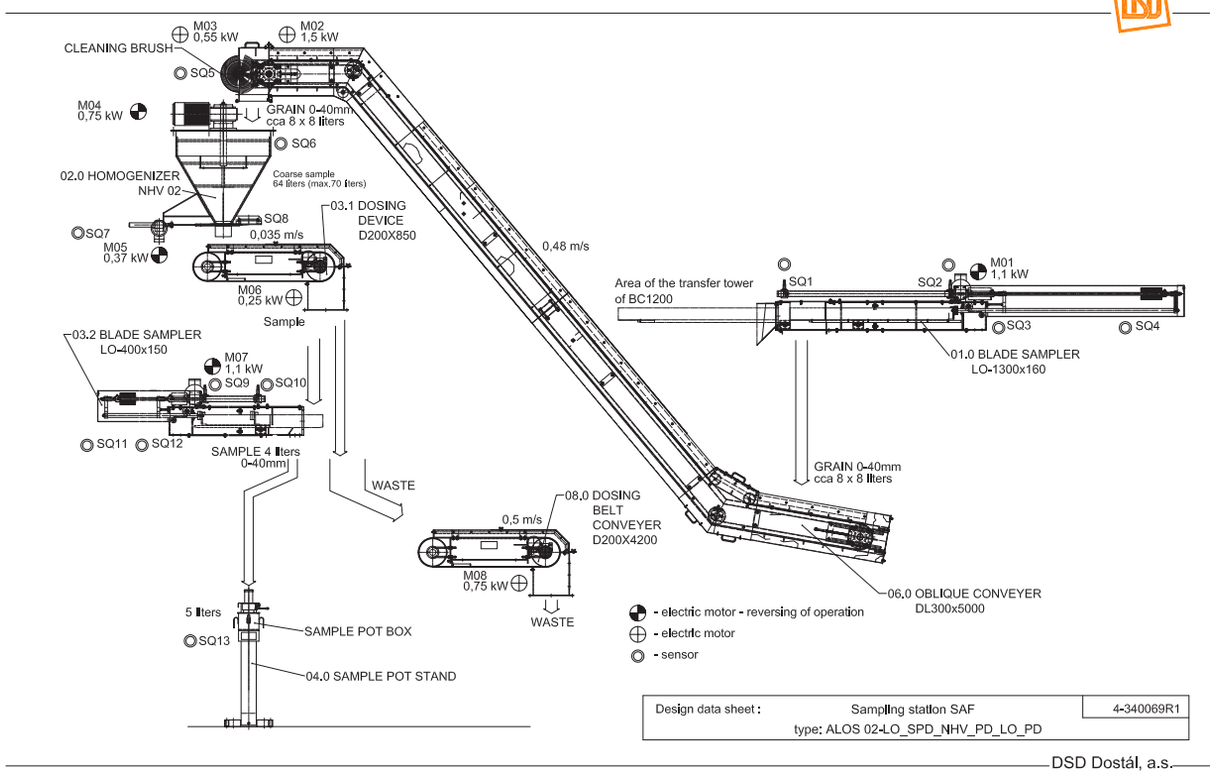
Task, final formulation of design
The sampling point is designed at a transfer tower from the first bulk conveyor onto the second one because there was a free space where necessary sampling technology could be positioned.
Frequency of sampling of approx. 8 liters from the material flow is 1x in an hour of the total amount 100 tons – processing period 8 hours. The particle size is max. 40x40x40 mm.
The final representative sample in the required amount 4 liters is collected in the sample vessel in the stand.

Description of the final design discussed and approved by the customer
The automatic sampling line ALOS 02 with its arrangement and design guarantees regular sampling of partial samples of material for the representative sample which is an average of all partial samples. Taking partial samples incl. further processing is automatic without operated.

Newly installed sampling station of SAF
- Distributing system under the homogenizer

Newly installed sampling station of SAF
- The inclined belt outlet to the homogenizer

Samples are taken by a shovel sampler LO-950x240 at the transfer tower from the conveyor belt BC1200 onto the bulk conveyor. The sampler is fixed on the side wall of the transfer tower under the conveyor belt perpendicularly to the material motion.
The sampling shovel is extended to the chute after the signal is given from the automatic machine. After the drive is switched over to a reverse run, the shovel is retracted back to the sampler. When the shovel is retracted, the sample is automatically emptied from the shovel to the chute leading onto the inclined belt DL300. The required amount is 8 liters. After sampling, the sample is taken by the inclined belt DL300 to the homogenizer NHV 02 the working volume of which is 64 liters. A cleaning brush is installed on the transfer tower of the inclined belt that perfectly cleans belts from previous samples.
The general coarse sample is collected in the homogenizer and it is mixed during the whole period of sampling. The homogenizer volume is designed in view of the later possible need of a bigger coarse sample. The homogenizer is of a conical shape made of stainless steel. The mixer is in the vertical axis of rotation. A slide gate with a linear drive is integrated at the discharge.
After the required amount of material is sampled, the sample is released through the slide gate to the chute leading onto the belt feeder D200x850. At the transfer tower from the belt feeder there is secondary sampling by a shovel sampler LO-400x150. There by several samples taken the total final required amount of 4 liters is sampled. The unused material of the collected sample (waste) falls through the waste chute onto the belt feeder D200x3200 that takes it back onto the bulk conveyor in the technology.
The final sample falls though the chute to the sample vessel positioned in the stand. The system gives a signal to the superior system that sampling was finished and it is prepared for further sampling. Unless the vessel with a previous sample is emptied, the system signals a failure before a new coarse sample is processed.
For the whole period of the sample processing, start of drives of the inclined belt DL300 and cleaning brush is blocked.
Chutes, supply piping, supporting structures are part of the sampling line. Sampler components are interconnected in a conductive way and connected to a grounding unit. Single elements of the station are designed for working area with explosion hazard – zone 22.
All metal items of the sampling station that come into contact with material sampled are made of stainless steel.



SAF sampling scheme