

The mining company LKAB in Kiruna bought an ITK-Envifront filter in 2001 to fine crushing section 12. They choose a PFSC-2414-35 in order to comply with the environmental legislation, to achieve their internal requirements and to bring the optimum economy.

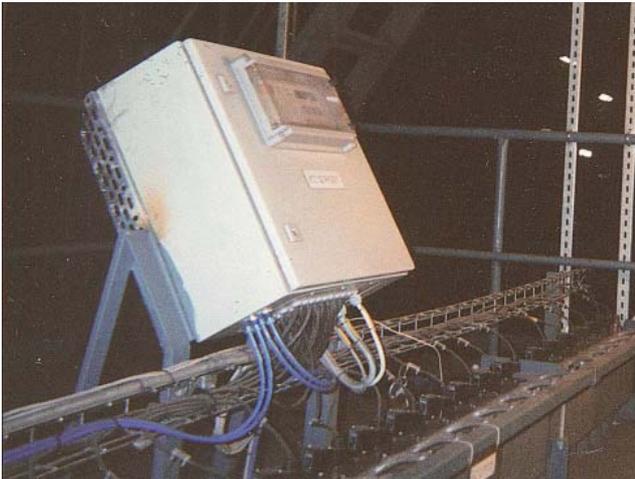
Plant description

Dust collector

Complete system build up with dust collector, fan, dust hopper with heat tracing, dust transport and duct system. The filter is manufactured and equipped with the utilization of unique technology regarding the control system, the gas flow distribution and the filter media.

Control system

The control equipment manage the filtration process by the means of measuring the differential pressure over the filter as well as the flow rate through the filter. The system calculates the filter resistance using unique algorithms and thereby optimizes the pulse rinsing frequency. The benefit of this method is energy savings, filter life improvements and emission improvements.



Gas flow distribution

The filter features a unique gas flow distribution. The down ward direction of the gas flow inside the filter chamber improves the dust sedimentation rate. The result is that the dust concentration in the filter chamber is lower as compared with the level at the inlet. The most common design is with an upwards flow direction of the gas, with the result that the dust concentration in the filter chamber is higher as compared to at the inlet and in some cases, the finer fractions will not be allowed to sediment at all.

Filter media / life time

The media features a high possible filtration velocity, high retention rates and a long durability. The reasons behind these features, is a very fine structure with a high homogeneity and flexibility.



Process requirements

Type of process	transport and crushing of iron ore
Gas flow rate from the process	74 420 nm ³ /h
Process temperature	10 - 50 °C
Gas flow to dust collector	80 000 nm ³ /h
Velocity in ducts	22,2 m/s
Incoming dust level	6 nm ³
Outgoing dust level (max)	5 mg/nm ³

System specification

Textile dust collector	PFSC-2414-35
Flow rate	80 000 nm ³ /h
Differential pressure	1 750 Pa
Filter media	Fine fibrous polyester felt, 470 g/m ²
Filter area	468 m ²
Filtration velocity	48 mm/s
Filter resistance	32 Pa/mm/s
Granted dust emission level	< 5 mg/nm ³
Actual dust emission level	1 mg/nm ³
Pressurized air usage	6 NI/s
Pressurized air pressure	6 bar

The filter have been fulfilling its duty over all these years since it was installed, bringing a low overall running cost and as well, have been bringing its good part of the improvement of the surrounding environment.

Reference

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