

## Case note

# Low harmonics reduce costs of blown film production



Start-up of the single-layer film extrusion line.

### ABB industrial drives improve production process

Idealplast S.r.l. in Italy celebrated 25 years of operation in film plastic production in 2003. The company's annual production is about 10,000 tons of low density polyethylene plastic film. They have about ten extrusion lines installed in their factory.

Macchi S.p.A, the biggest OEM of complete film extrusion systems in Italy, has supplied two new extrusion lines to Idealplast. Macchi has concentrated its efforts on improving and developing the coextrusion technology available to the world film processors.

The commissioning of the manufacturing lines using ABB industrial drives and motors was made by Macchi in cooperation with ABB Service. Panel builder Gefran installed the drives in the cabinets.

The complete delivery included one single-layer film extrusion line and one three-layer film extrusion line with three extruder screws.

The single-layer film extrusion line uses 10 multidrive modules totalling 300 kW, and the three-layer film extrusion line 12 multidrive modules totalling 400 kW. On both lines the production is about 350 kg of film per hour. Both lines are mechanically and electrically designed to improve the production by a factor of two. The film produced is mainly used for the packaging of different goods, such as in the food industry.

Idealplast needed a very low harmonic level in order to optimise the calculated cost for each kilogram of film produced. The existing drives are mainly DC drives and there is also some equipment for winding the plastic film on coils and for other manufacturing such as printing on the film. Two different types of AC motors, standard IEC motors and square frame low inertia motors, have been used to run the extruder screws. AC drives help to meet the requirements in this integrated production line.

There was also a need to meet the total harmonic distortion (THD) values set by the network supplier. For this reason the dimensioning of the drives was made using a solution with a common DC bus and IGBT regenerative supply unit in order to achieve the required low harmonics level.

The ABB industrial drives enable the customer to save energy due to the fact that at nominal production current harmonics to the network is less than 5 percent. This factor, together with the reliability of the customized solution, resulted in savings in film manufacturing. For example, the power needed to produce 1 kilogram of film on extruder line was 0.5 kW, whereas now it is only 0.25 kW. Enrico Sasso, ABB Sales Manager explains: "The multidrive modules have proved very reliable since production on the new lines started at Idealplast. We have succeeded in helping the customer to improve their production process and reduce the production cost". The reduction in harmonics also minimizes any disturbances and faults with the electronics. The capacitor banks for improving the cosfi are no longer needed.



ABB industrial drives installed in the cabinets.

#### Solved problem

- The need to optimise the cost of film production
- The network supplier's requirements for THD values had to be met

#### Solution

- Dimensioning of the drives was made using a solution with a common DC bus and IGBT supply unit to achieve the low harmonics level

#### Benefits

- Improved and increased film manufacturing at reduced cost
- Less harmonics, better cosfi
- Fewer disturbances and faults with electronics
- No more capacitor banks needed to improve cosfi
- Uninterrupted throughput

For more information please contact:

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Winding of the flatten blown film.