

“Green” solutions for the process industry



The customer

**High-efficiency and environmentally compatible solution:
the requirements of Radici Film, a leading company in the BOPP
production industry.**

Radici Film, has a production volume of 110,000 t a year and is one of the three biggest European producers of bi-oriented polypropylene (BOPP) for food production and non-alimentary use. Its 2007 turnover of 194 M € and with more than 450 employees bear witness to the size of the company in absolute terms.

The two production centres, in Italy and Hungary, work in a continuous round-the-clock process with a maximum of two shutdowns a year for scheduled maintenance.

The need

“Process control” protection

Radici Film needed to reduce the risk of its Italian plant to all kinds of power supply breaks, protect the knowhow stored in its PLCs and control the systems in general. All of which had to be in a pre-existing plant with building management systems based on the PROFIBUS protocol.

Clearly, the solution is a complex one, given that the total power of 12 MW is distributed over:

- 5 production lines located in two buildings
- two server rooms with redundant architecture and a production database and ERP shared by both the Italian and Hungarian production sites
- 2 office blocks.

The potential economic damage caused by breaks in the power supply is related to actual machine downtime (i.e. not just the duration of the power cut) and can amount to 20,000 € an hour.

In BOPP production, power cuts of as little as 300 ms are enough to cause the film to stick to the stretching rollers. The consequent cleaning operation can take up to 3 hours.

The Radici Film power supply network is subject to frequent micro-interruptions, long enough to cause the clogging up of the machines, with blackouts sometimes lasting 15-20 minutes. It should also be noted that, after the blackout of 44 minutes on the 29th of June 2005 which brought Italy to a standstill, it took 20 hours to get the entire production plant up and running again.

Radici Film's awareness of eco-compatible development is proven by its ISO 14001:2004 “Environmental management systems” certification and has been one of the main guidelines underlying its technical-production choices.

The end goal, therefore, has been to protect the process control in as effective and environmentally friendly a way as possible.

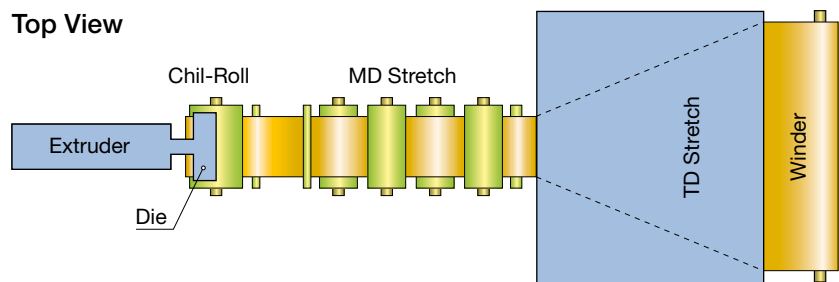


RADIC_003_A

Side View



Top View



RADIC_001_A_GB

The solution

Industrial UPS, kinetic storage system and quick-start genset

Right from the start, Radici Film has always seen flywheel energy storage as the solution to its needs. An analysis of the technologies available on the market and the positive experience of 15 years collaboration has led it to choosing SOCOMEC UPS as partner.

The solution, devised to meet Radici Film's needs, consists of a system with no-break power guaranteed for the first 15 seconds by an industrial UPS with kinetic storage and a quick-start generator set guaranteeing a further 8 hours autonomy at full load.

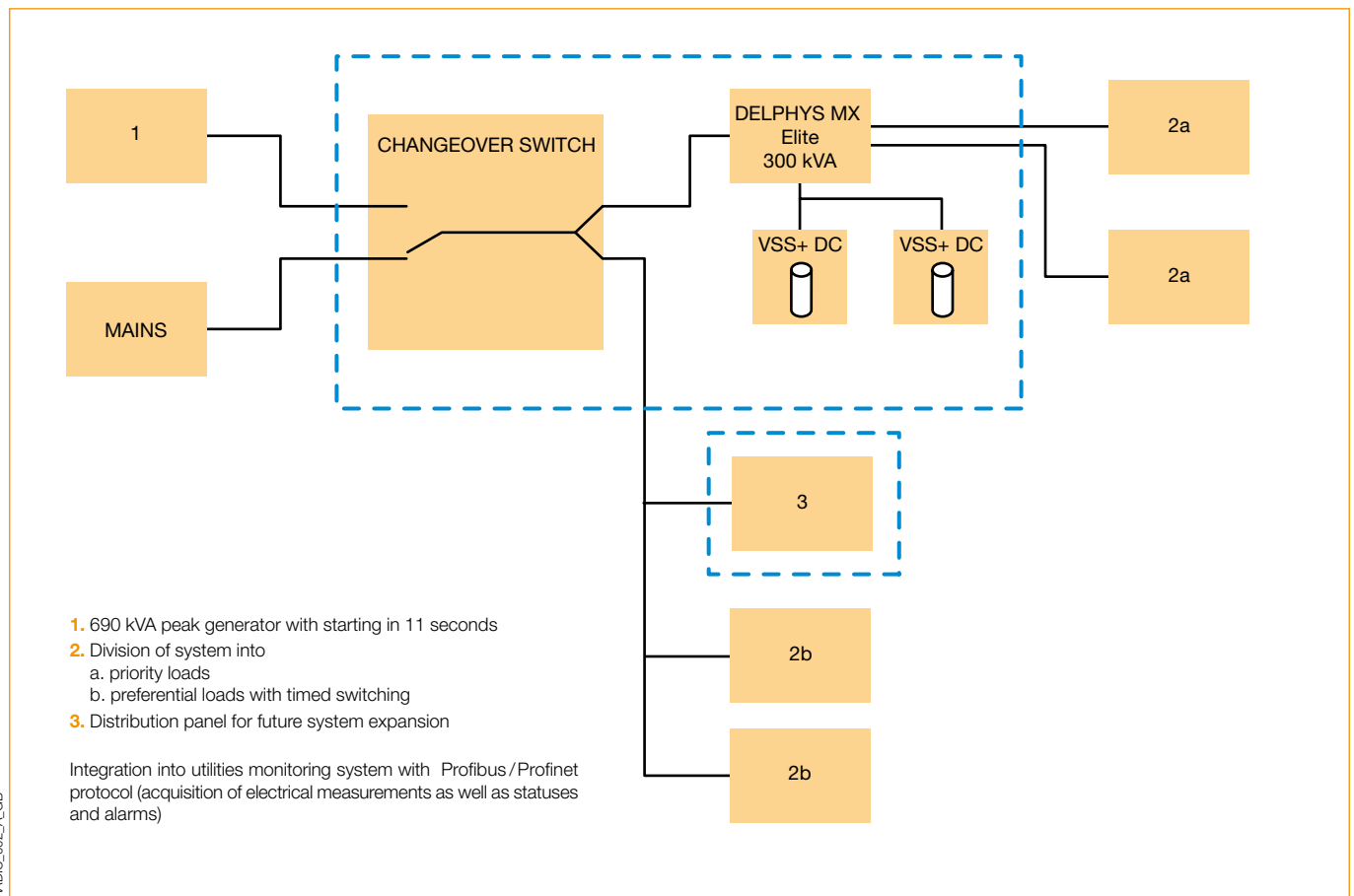
This is combined with the carefully timed switching of loads classified as preferential in order to avoid excessive inrush currents on the generator set.

The 120 kVA process control loads are priority loads and are continuously protected by UPS to ensure a permanent power supply.

The two office blocks are preferential loads totalling approximately 370 KVA and are switched on with two different delays and, in any event, when autonomy is guaranteed by the generator set.

The architecture

Detailed breakdown of system



The advantages

Kinetic storage system with quick-start genset

Environmental compatibility

No battery disposal problems and storage process efficiency of over 99%.

Protection against all power breaks, both micro and prolonged

Optimum solution always available on basis of duration of power break: **VSS⁺DC** up to 15 seconds and generator set for longer times.

Recovery of maximum autonomy in less than four minutes

VSS⁺DC recovers the energy output almost instantly, as the storage system is not based on chemical processes.

Drastically reduced maintenance

Minimum, quick maintenance, with constant storage capacity over time.

Lasting investment value over time

The aging of the components is minimal, and is limited to a few parts, easily replaceable with normal scheduled maintenance.

Reduced Total Cost of Ownership

The absence of batteries and battery changing, the minimum level of maintenance and the high efficiency of the system give an estimated investment recovery period of 5 years.



Future needs

System expansion and centralised emergency lighting system

The upgrading of the plant has made Radici Film think about possible future expansion. For this reason the scaling of the system allows for a future office block.



Focus on

RADICI FILM

- 110.000 t of BOPP a year
- 194 M € turnover in 2007
- Third biggest European manufacturer

SOCOMECS UPS

- **DELPHYS MX Elite** 300 kVA
- 2 **VSS⁺dc**
- Plant development consultancy
- Assistance in scheduled and preventive maintenance

The advantages

- Environmental compatibility
- Protection against all power breaks, both micro and prolonged
- Recovery of maximum autonomy in less than four minutes
- Drastically reduced maintenance
- Lasting investment value over time



Andrea MAINARDI

Maintenance & General Services mgr.

"Fifteen years of positive experience with SOCOMECS UPS and Radici Film's care for the environment have led to the choice of the **DELPHYS MX** with flywheel energy storage **VSS⁺dc**".

HEAD OFFICE

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