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**Hard-to-handle fruit,
veg & poultry waste proves easy
pickings for Seepex BTM pumps**

p12



**Duplomatic makes
Expo 2020 Dubai fly**

p26



**Integrated systems
approach to hoses**

p38



**Advanced machine
analytics gets an edge**

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Diplomatic makes Expo 2020 Dubai fly

Diplomatic MS Spa has contributed a futuristic engineering project to Expo 2020 Dubai, the Universal Exposition to be held in the United Arab Emirates from 1 October 2021 to 31 March 2022, the first to take place in Arabia.

Italy, as official participating country (<https://www.italyexpo2020.it/en/>), brings the excellence of its engineering to the Arabian Peninsula, but above all that all-Italian ability, now recognised worldwide, to develop large tailor-made projects and transform major technological challenges into effective and innovative solutions.

Within this context, Diplomatic was commissioned to create the hydraulic system for opening the roof of the United Arab Emirates pavilion, designed by architect Santiago Calatrava in the form of hawk wings, the symbol of the host nation.

Translating aesthetic requirements into technical parameters

Paolo Leutenegger, general manager of Diplomatic MS, comments: "The pavilion designed by Santiago Calatrava is a work of art and the first major difficulty is represented by the translation of aesthetic and experiential requirements into technical and engineering parameters. The Expo project represented an important challenge for our Group, both from a technical, and logistical – organisational point of view. The development of the wing motion system of the UAE pavilion is unique in the world."

This project is claimed to be the largest hydraulic system of this kind ever built. The Diplomatic system consists of a 1 mW power hydraulic unit, with a tank

containing 20,000 litres of oil, which distributes the pressurised oil through 2.5 km piping to the 46 hydraulic cylinders in the 28 wings.

Leutenegger continues: "Wing motion must be perfect from an aesthetic point of view and this is helped by the architecture of the control electronics, featuring nine computers and a dedicated software, which manages over 2000 control points distributed in the pavilion. The project is majestic."

The work is an expression of the Diplomatic Group's vision of being a global technological player for innovative motion control solutions; it

will remain on display for the ten months of the Expo but is destined to leave its mark on the history of the Universal Exposition.

The project in figures

- 1 mW installed power.
- A tank containing 20 thousand litres of oil.
- 46 hydraulic cylinders on 28 wings, which distribute pressurised oil through 2.5 km piping.
- 17 electrical cabinets for power supply and motion control, featuring 9 PLCs, 25 km of optical fibre and cabling, over 2000 control points distributed throughout the pavilion.

