

## Project

The Sparvo Tunnel is part of the "Variante di Valico" project, a 65.8 km long motorway link between Barberino di Mugello and Sasso Marconi, which aims to modernize the Apennine section of the A1 motorway between Florence and Bologna and make transfers easier, safer and faster. The tunnel is twin-tube single track type, each about 2.6 km long with an internal diameter of 13.6 m and an outer diameter of 15 m. The tunnel is excavated by a TBM which then installs the lining segment rings made of reinforced concrete.

In 2010, Euroform has been awarded the supply of the carousel plant for the production of the lining concrete segments of the Sparvo Tunnel.

The plant is made up of:

- 4 Sets of wheeled segment moulds in 9+1 configuration (40 in total).
- 1 Working line transfer system.
- 1 Plant control room.
- 1 Casting station.
- 2 Transfer units for moving the moulds from the working line and the curing tunnel and vice-versa.
- 6 Curing room gates.
- 1 Segment finishing line.
- 2 Extrados vacuum segment handling devices.

The system is semi-automated and activated by a PLC installed in a control room. The PLC runs a program that processes the data from the several sensors of the system (placed on each moving element) and sends the commands to the actuators (cylinders and motors) which then realize the movements. The operation cycle is manual activated by an operator (carousel leader) in the control room.

Plant functioning steps:

- Mould opening and segment dismantling.
- Cleaning, mould closing and oiling of the dismantled mould.
- Dimensional check of the mould by a micrometer.
- Reinforcement cage and inserts positioning.
- Cover closing.
- Pouring and vibration.
- Accelerated curing of the segments.
- Finishing of the segments (tilting and gasket installing).

## CLIENT

Toto Costruzioni Generali

## MAIN FEATURES

Plant type:	Carousel
Production rate:	90 segments/day
Pouring rate:	565 m <sup>3</sup> /day

Working line



Control room



Casting station



Curing tunnel entrance



Vacuum segment handling device



Finishing line

