

Dosing, weighing and mixing solution for masterbatch



BACKGROUND

One of the largest manufacturer of passenger car radial tires (PCR) turned to NTE Process to design a new masterbatch line in India. The Company needed a turnkey solution for handling carbon black, silica, polymers, oils, bulk chemicals, silane and small chemicals.

CUSTOMER REQUEST

The customer's main concern was to **reduce the discharge time of the batch** from the hopper to the mixer, with the guarantee that the entire batch would be discharged completely.

NTE Process designed a **tailor-made** solution by providing a **complete batch house** that achieved reliable and repeatable performance and was characterised by an operator-friendly system.

THE SOLUTION

The system provided consists of a batch house daybins for carbon black, silica and bulk chemicals.

Each bin has been provided with a screw feeder equipped with a secondary fine dosing screw and a variable speed drive inverter controlled each in order to have the **lowest possible error margin** and ensure a **very precise dosing** inside the scale units.

Each material is handled with dedicated scale units composed by a hopper that is made of **Hypalon membrane** and a discharge valve to guarantee a fast product discharge inside the mixers.

Each scale unit is equipped with a **very sensitive weighing system** in order to record a **negligible**



TURNKEY SOLUTION FOR
MASTERBATCH LINE



TWIN DOSING & WEIGHING
SCREW FEEDERS



FLEX WALL BATCH
SCALE M524

deviation from setting values and with an automatic weigh calibration system to guarantee an efficient performance.

The customer was also provided with a SCADA-based automation and control system with a very user-friendly interface.

BENEFITS

- **Dosing accuracy** thanks to high precision weighing cells and autocalibration system between batches.
- **Reliability** of the weighed batch and **repeatability of weighing performance**.
- **Fast discharging of the whole batch** from the hopper into the mixer thanks to a purging, punching, vibrating and shaking valve (250kg in 4/5 seconds).
- **Reduction in unloading time** with consequent **reduction in dead times**, allowing the customer to increase the number of mixes.
- Complete **taylor made and user-friendly interface**.

CONCLUSIONS

The operating success of tire and rubber compounding process depends on the high availability and reproducible product quality.

NTE Process developed his own Recipe Management and Scada system in order to achieve maximum reliability and accuracy.

Best products and equipment jointly to innovative and continuous improved technology guarantee the best dosing performance of raw materials, silica, carbon black, and chemicals.

The process is fully designed for the specific customer requirements and is completely taylor-made for each product characteristic.

At the **NTE Scientific Hub**, equipped with a **Research and Innovation Center and Pilot Plant**, it is possible to carry out tests on a 1:1 scale to experience NTE Process technologies first hand, obtain reliable data on the advantages deriving from each solution and prevent any critical issues of each process.

ABOUT NTE PROCESS

NTE Process is the **Single Source Provider** of process solutions for the industry ranging from dense phase pneumatic conveying to mixing, but also liquid injection, drying, spray drying and in-line formulation, up to packing. The headquarters is in Gorgonzola (MI), while in Pessano con Bornago (MI) there are both the second site which includes the assembly and testing area and the NTE Scientific Hub, where a team of specialized engineers deals with R&D and carries out full scale and scientific test.



TYPICAL CONFIGURATION
OF A FLEX WALL BATCH
SCALE UNIT M524