

DI MATTEO's WeighTUBE® series is successfully expanded

The reliable, trouble-free and highly precise dosing of bulk materials has always been one of the key factors in a complex process such as cement production. This has always been true, but today, with our automated processes, it has become more and more important. In the past it was particularly difficult to dose reliable, trouble-free and precisely solid alternative fuels, such as RDF, SRF, municipal waste, biomass, animal meals or dried sludge. The available technical solutions to date, including weigh belt feeders, loss-and-weight-systems, rotor weighfeeders or normal screw weighfeeders, have varying disadvantages that prevent them from fulfilling the user's requirements.

Therefore, Di Matteo, known as a leading company in the field of bulk material handling systems and for the handling of alternative fuels, decided to develop its own dosing system, suitable to fulfill all high requirements for a process dosing system. With the help of more than 45 years of experience in the cement and other heavy-duty industries, and after 5 years of development, the company developed the award-winning WeighTUBE® dosing system (Figure 1).

In spite of the cement industry's usual conservatism, since the official market introduction in the beginning of 2012¹⁻³ more than 40 units of the unique and patented dosing system have been established worldwide. Meanwhile the WeighTUBE® is manufactured in series.

Di Matteo is not only an engineering company, but an expert "Made-in-Germany" production company. All products are designed and manufactured in one of the three production plants in Beckum or Ilmenau, Germany.

Originally the WeighTUBE® was developed for the dosing of solid alternative fuels. However, the preferred substitute fuels are often industrial wastes with a high calorific value. These powdery, granulated, pelletised fibrous and flocculent secondary fuels derived from quality-controlled industrial wastes are generally known as fluff (gas-entrainable fine materials). One of the special

challenges for the successful dosing of these difficult materials are the unstable and fast changing bulk material characteristics – i. e. very low bulk density, down to 30 kg/m³; high humidity up to 50%; wide range of particle sizes between 100 µm and 100 mm.

As already described in a previous article,¹ industrially applicable dosing systems must have the following characteristics: high accuracy, large control range, short response times, good reproducibility, great reliability and a high level of automation. In accordance with the current state-of-the-art technology, gravimetric dosing systems are equipped to continuously weigh the material flows and have a higher-level control to regulate the mass flow rate of the bulk material according to a defined set-point value. Further criteria for a gravimetric dosing system for alternative fuels are:

- Insensitivity to harmful constituents.
- High short-term and long-term precision.
- Possession of a system calibration facility, best performed automatically and online during operation.
- Comprehensive system function monitoring.
- High operational reliability.
- Simple mechanical design for an easy maintenance.
- The same dosing continuity as achieved with conventional fuels.
- Compact dimensions.

With the WeighTUBE® all these criteria can be successfully fulfilled. Furthermore, the WeighTUBE® is also available for "normal" bulk materials such as coal, cement,

Figure 1. The revolutionary and award-winning WeighTUBE®



Figure 2. Facilities in one of Di Matteo's German production plants.



raw meal, clinker, slag, flyash, etc. The series has been extended and so for every requirement the optimum size and design of the WeighTUBE® can be offered.

The development of the WeighTUBE® for the efficient gravimetric dosing and feeding of the kiln process with raw meal, coal and alternative fuels has become a significant milestone for the cement industry, providing a dosing system that meets all requirements for an improved and sustainable kiln process. The WeighTUBE® series, originally developed for dosing of alternative fuels, has proved itself in practicable operation and today

represents a successful extension to the existing range of WeighTUBE®. Upon request, potential clients can attend demonstrations using their desired bulk materials at the company's testing facility. 🌐

References

1. DI MATTEO, L., MAROTZ, G., STROTKAMP, U., 'A dosing system for good measure', *World Cement* 1 (2012), pp. 57 – 60.
2. DI MATTEO, L., MAROTZ, G., STROTKAMP, U., 'High accuracy fuel dosing', *ICR* 6 (2012), pp. 77 – 81.
3. Di Matteo Förderanlagen GmbH & Co.KG, 'DI MATTEO wins innovation award', *Global Cement* 1 (2012), p 12.