

Flexible grinding system finds its way from the trade fair into the plant

Explosion-proof hammer mill

A visitor sees a Frewitt high-tech solution at the trade fair and enthuses to his colleagues about it; soon after, initial solutions are being discussed at an introductory meeting between representatives of the manufacturer and the user. As a result, an Atex-compliant Hammerwitt-6 hammer mill has now been installed at a pharmaceutical company in Ireland.

One of the first innovations of the new Hammerwitt-6 generation of hammer mills was the monobloc housing, where there is no dead space. Since then, regular improvements and adjustments have been incorporated to meet customer requirements and

conform to new guidelines. Fredrive marked Frewitt's entry into modular, fully flexible, mobile grinding concepts which are suitable for a multitude of powders with the most diverse flow characteristics and applications. The need to convey, dose, grind

and fill highly active pharmaceutical ingredients (HAPI) then led to a high containment solution for high-end processes with continuous filter cleaning, monitoring of the O₂ content, integrated bearing flushing, cooling and much more besides. The Hammerwitt-6 as it is known today had to overcome numerous obstacles and challenges – sometimes with ease but sometimes only inch by inch. The result is a far more flexible grinding system that provides comprehensive answers to high containment requirements.

With its compact, modular design, the Hammerwitt hammer mill can be integrated easily into almost any process



First seen at a trade fair

Whereas mills were previously required above all to deliver outstanding throughput, they are nowadays expected to offer flexibility and safety. These were a visitor's main concerns at the Frewitt stand. He enthused to his colleagues about it and, soon after, initial solutions were being discussed at an introductory meeting between representatives of the manufacturer and the user. The hammer mill, which was to be installed in a line at the visitor's pharmaceutical company in Ireland, had to be Atex-compliant. It also needed to be compact as well as easy to maintain, access and clean. Since none of these requirements could be met by the existing hammer mill supplier, it soon became clear that an alternative Frewitt solution was a viable option.

Atex-compliant hammer mill

The two parties agreed on a Hammerwitt-6 with a grinding chamber featuring an Atex II 1D (Zone 20) design, while the remaining parts were to have an Atex II 3D (zone

22) design. To guarantee a gentle and continuous supply of highly active ingredients, the user opted for the Profi-Valve 150 dosing device with a pneumatic drive mounted at the inlet of the Hammerwitt-6. A Profi-Clean 90 standalone de-dusting and filtering system, equipped with two oxygen sensors, was provided on the housing of the HW6. This system cleans the exhaust air using a PTFE H13 filter, from which the adhering particles are guided back into the process by a repetitive pressure surge. The mill housing with the N₂ port had to be assembled on a special frame, so that it could be easily integrated into the existing structure between the inlet and outlet. A trolley ensured that the device could be moved to another room for cleaning purposes or used as a standalone device.

Where Atex designs are concerned, nothing can be left to chance: the machine can only start if the oxygen content in the process is below the set limit value. A system in the process chamber area (inlet, mill, outlet), takes care of this by regulating the pressure and the oxygen content. The latter can be adjusted according to the required concentration. It is continuously monitored and if

the limit value is exceeded, an alarm which brings the mill to an immediate standstill is triggered.

Last but not least, the system not only needed to be safe to operate but also convenient. It had to be possible to start or stop the mill, which is at container height, on an HMI with a more than 2 m long cable.

Cleaning in place

The system described above is now working to the complete satisfaction of the customer in Ireland. One aspect the operators find particularly helpful is the compact design of the Hammerwitt-6 in combination with the WIP system. At the end of a production cycle, the machine can simply be washed in place. An add-on glove box can be used during production to inspect the mill or replace the screen without breaking the system's containment. Before the new system was commissioned, the old hammer mill had to be dismantled into seven individual parts, which were washed externally. This inconvenient cleaning process is now a thing of the past.

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A Hammerwitt-6 with a Profi-Valve 150 dosing device mounted at the inlet is used at the Irish pharmaceutical manufacturing plant



AUTHOR
MATTHIAS HONISCH
Regional Sales Manager,
Prewitt