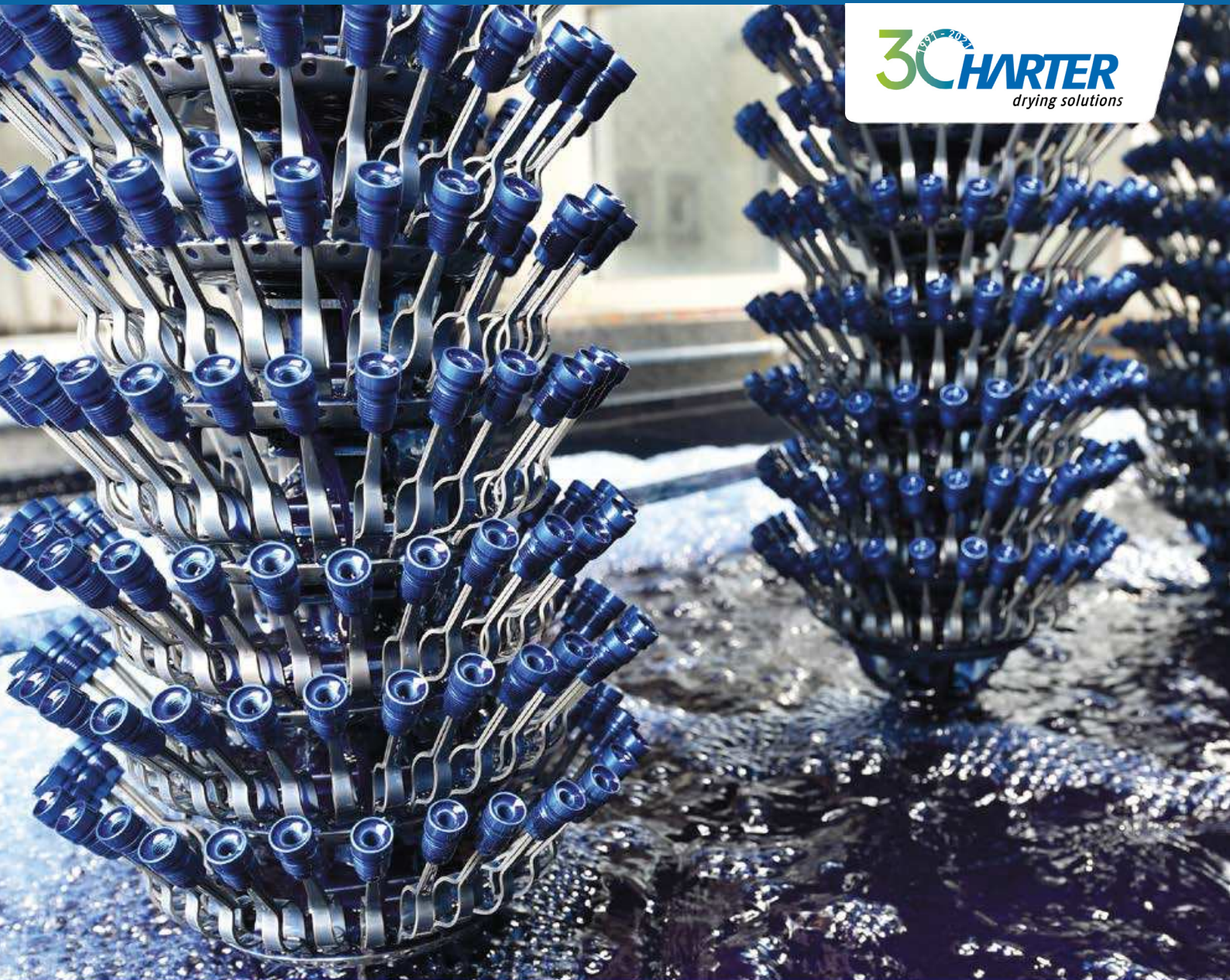


Werkstoffe

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DIE FERTIGUNGSWELT VON MORGEN



30 1991 - 2021 **CHARTER**
drying solutions

30 YEARS OF EXPERIENCE IN DRYING

Optimal drying solutions for all applications



Fig. 1 and 2 – Racked metal and plastic items are gently processed in rack dryers to become completely dry within the specified cycle times.

Conventional hot air dryers frequently do not produce the desired results. Therefore, drying often constitutes a bottleneck in the production process. And these obsolete dryers tend to be really extravagant with energy. This should be reason enough to take a closer look at an alternative drying technology which the government has classified as being eligible for subsidy.

What we are talking about is heat pump based condensation drying. It was developed by drying system manufacturer Harter 30 years back. This drying process follows an alternative physical approach distinguished from conventional methods. It is capable of drying products fast, reliably and with low energy input using extremely hot air in a closed circuit to remove any moisture present. Drying is effected at temperatures variable between 20 °C and 90 °C as required for the specific product or process. The process is flexible allowing both batch operations and continuous applications. Harter offers batch dryers, such as rack dryers, and in-barrel dryers for bulk material. The portfolio also includes drying of industrial sludge resulting from wastewater treatment. Here are some examples of actual applications for illustration.

Racked Items Dried Fast

Quite a few of Harter's customers are plating contractors with a large product portfolio. One of these companies did not get their galvanised items completely dry. Some items had to be blown clear manually and then redried. They

Fig. 3 - Convenient and reliable in-container drying of bulk material. In-barrel drying is state-of-the-art today.

wanted to eliminate the high cost incurred by extra time, labour and energy as well as the noise induced by compressed air blowing. They invested in a Harter rack dryer to optimise their process. Following successful drying tests, the system was installed and is capable of completely drying their items at 70 °C within the specified < 10 min cycle time without the need for air blowing. The rated power of the energy-efficient system in production operation is about 12 kW.

One Dryer Replaces Several Ovens

A manufacturer of silverware plates various plastic items - for jewellery, watches, picture frames etc. - in their in-house plating shop. Their continuous dryer was not integrated in the existing plating line so that the items to be dried had to be removed and transferred to the dryer manually. They wanted to optimise their process. Space, however,

was restricted, as in many companies, so that several ovens could not be placed at the end of the plating line. And one single oven would not have provided the desired drying throughput. Drying tests, again, demonstrated that the Harter technology was capable of drying a rack of suspended items within 5 minutes. So, one dryer was enough to both gently and completely dry their silverware at < 65 °C.

In-barrel Drying of Bulk Material

One of the milestones achieved by Harter was drying of barrelled material inside the barrel, with no or only minimal intermittent barrel movement. As early as in 1996, Harter developed a special half-shell technology for this purpose. Hundreds of barrel dryers have meanwhile been installed successfully. Although some circles entertain the dogged belief that in-barrel drying is impossible. An example shows quite the opposite. A plating contractor installed



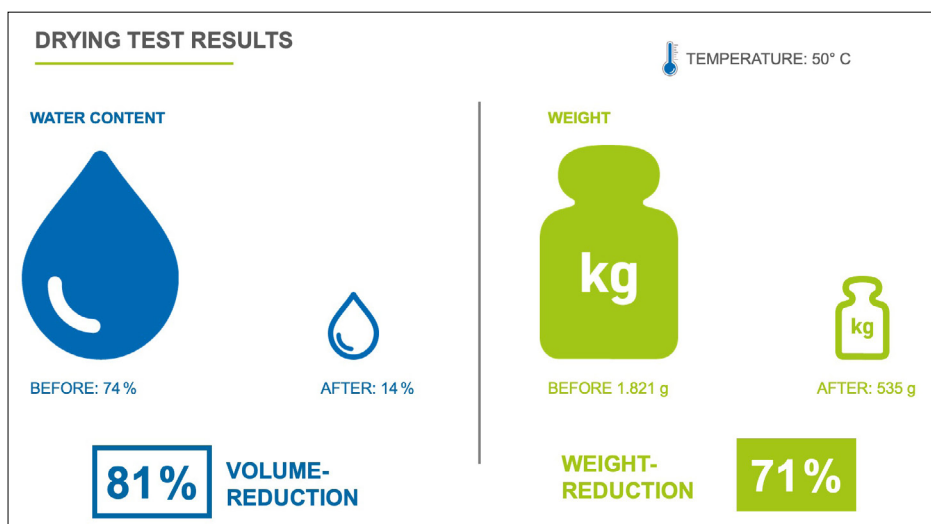


Fig. 4 - Example test results illustrate the volume and weight reductions which may be achieved by sludge drying.



Fig. 5 - Standard sludge dryer for drying 1,000 kg of sludge a day

a new barrel galvanising line. Instead of using the detrimental and time-consuming centrifugation to dry their material they now employ an in-barrel dryer. The dryer renders their material completely dry within eight minutes, or sometimes

even faster. The drying temperature is 75 °C, low enough to be easy on both the products and the barrels. The compact in-barrel dryer has a rated power of 15.9 kW. A closed air circuit ensures that the system is independent of the

weather and the seasons. Absolute process reliability is also ensured.

Drying Sludge to Save Cost

Heat pump assisted condensation drying is also used to dry sludge after mechanical pre-dewatering in order to save disposal and transport cost. Sludge weight and volume may be reduced by as much as 60 percent depending on the nature and properties of the sludge. Cost reduction amounts to a commensurate 60 percent. Sludge drying offers a huge financial potential. Sludge, when dried, may receive a more advantageous classification, as some of the applications have shown. Some materials may also be separated and recycled, thus providing a source of extra receipts.

Government Subsidy

Companies choosing to invest in a low energy Harter condensation dryer may benefit from government subsidy. The heat pump technology integrated in Harter's dryers is energy and carbon emission saving enough to be considered future-oriented by the government. This qualifies Harter's dryers for various applicable promotion schemes. For customers to easily overcome bureaucratic barriers Harter has partnered with an energy consulting firm to see about the application for subsidy, if desired. The success rate has been 100 percent so far.

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