HARTER drying solutions

DRYING OF INDUSTRIAL SLUDGE

SAVING COST WITH A HEAT PUMP

RELIABLE. EFFICIENT. DUST-FREE. GOVERNMENT SUBSIDISED.

LESS WEIGHT.
LESS VOLUME.
LESS COST.

Most of the money spent on disposal is actually paid for water. Using our heat pump based Drymex® sludge drying technology you will reduce the weight and volume of your sludge by as much as 60 percent. This means that **your disposal cost will also drop by as much as 60 percent**.

The system realised will either be a compact or a special type depending on the quantity of sludge to be dried and on the prevailing space conditions.

Drying of sludge with our Drymex® dryers offers the following advantages:

- Drying at low temperatures between 30 °C and 60 °C
- Drying in a closed system with no resulting exhaust air
- High efficiency through air dehumidification using heat pump technology
- Energy and cost savings through a perfect combination of air conditioning and air routeing
- Drying makes certain substances contained in the sludge available for recycling
- Long lasting value of the systems
- Short pay-off periods

BEFORE

- 60 %

AFTER

DRYING AT LOW TEMPERATURES

Using our technique you will dry your sludge within defined temperature limits. The perfect interaction of extremely dry air and appropriate routeing of this air also ensures efficient, reliable, and uniform drying of your sludge.

DRYING WITHOUT EXHAUST AIR

Dehumidification takes place in an energetically closed system. So, the safe operation of our drying systems is completely independent of climate or weather impacts. This results in highest process reliability. Also, odour pollution issues will thus be history for you.

DRYING WITH A HEAT PUMP

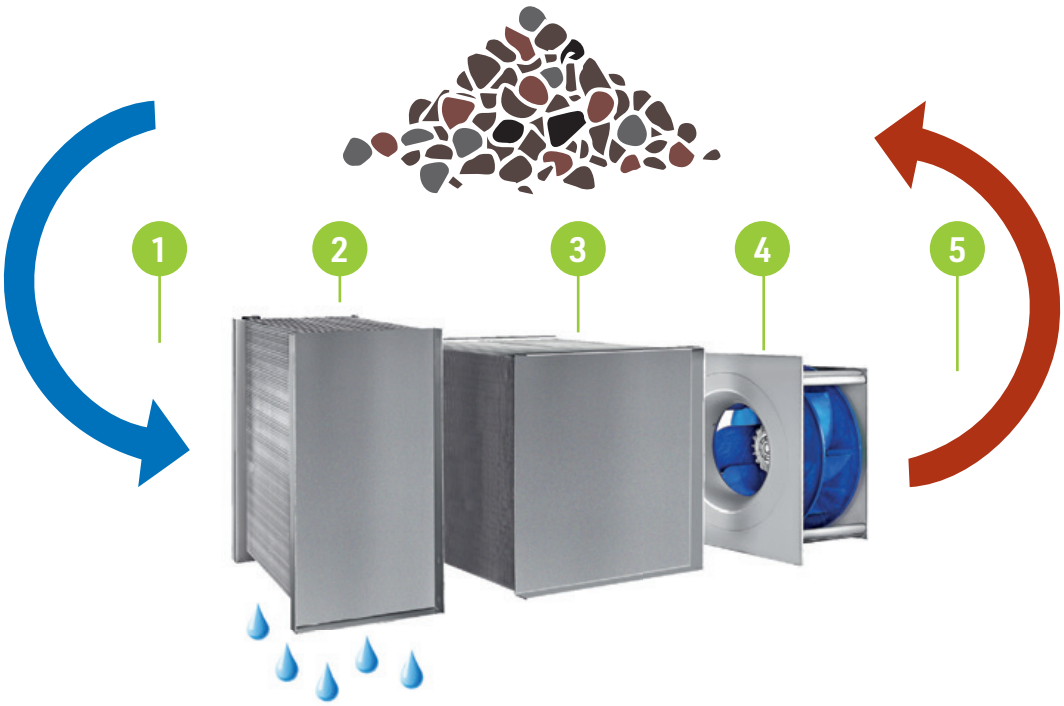
The heat pump technology integrated in all dryers enables dehumidification with highest efficiency. Requiring just 0.4 kWh max. per litre of water extracted this technology is the only and the best solution for exhaust-air-free drying.

SAVING ENERGY AND CARBON EMISSION

Our heat pump technology implies a large reduction of your cost of operation. You get a system that is both reasonable and sustainable – in terms of economy and ecology.

DRYMEX® – THE PROCESS

Each of our drying systems consists of a dryer and a heat pump module. The dryer is the room in which the product is dried. The heat pump module provides the process air required and is also responsible for the condensation process: We use extremely dry and thus unsaturated air which we pass evenly through the sludge. Efficient air conditioning combined with appropriate air routeing ensures high quality drying results.



1. Interface between Drymex® heat pump technology and material to be dried: Humid air is taken from the sludge and passed on for dehumidification.

2. Humidity precipitates on the air cooler fins, and the condensate leaves the system through the collector and the drain.

3. The air heater heats the air to the required process temperature.

4. The process air fan provides the necessary exchange of air between the Drymex® heat pump technology and the material to be dried.

5. Now, the dried, unsaturated air is passed through the material to be dried. The circuit is herewith closed.

DRYMEX® M-LINE COMPACT SOLUTIONS

The M-Line consists of compact sludge dryers with customised container sizes. Constant and reproducible results for batch sizes of 0.25 m^3 to 1.5 m^3 are obtained with a sophisticated combination of air dehumidification and targeted air routeing. Drying in a closed system makes the process completely independent of climatic factors. The systems operate in fully automatic mode controlled by electronic humidity measurement. The dryer shuts down automatically when the desired degree of dryness is obtained.

Drymex®-Module	Sludge Quantity kg/24 h	Water Extraction Rate l/24 h*	Useful Container Volume
M2	250	125	0.25 m^3
M3	500	250	0.50 m^3
M4	1.000	500	1.00 m^3
M5	1.500	770	1.50 m^3

*The maximum water extraction rate depends on the humidity of the material to be dried and the ambient conditions

Features

- Insulated drying cabinet
- Heat pump
- Humidity sensor for automatic shut-down when the dryness limit is reached
- Air cooler: stainless steel core tubes
- Epoxy resin coated aluminium fins
- 1.4301 stainless steel drying cabinet bottom, air duct, and sludge container
- Framework: powder-coated aluminium
- Housing: anodised aluminium
- Sludge container with tipping provision for emptying
- Airflow rate control for optimum dehumidification:This is reasonable for applications where fill heights vary largely, or where various types of sludge are dried that differ largely by their resistance to the passage of air

DRYMEX® S-LINE SPECIAL SOLUTIONS

We design customised and modular drying systems meeting your specific requirements and duly reflecting your local conditions, which are of major importance. Other than with compact dryers, the heat pump module and the drying container of special systems are normally installed in separate places. Our technology enables the integration of our drying systems to perfectly fit into the space available.

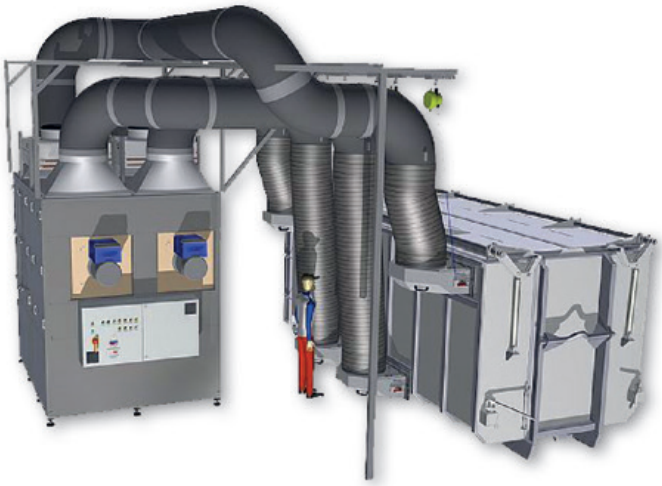
The drying container has a special bottom designed to allow the passage of air. All our dryers feature a closed air system that prevents climate impacts on the drying quality. The special systems are subject to fully automatic control. The dryer shuts down automatically when the desired degree of residual air humidity is reached.

For these special systems, too, efficient dehumidification perfectly combined with customised air routeing is mandatory to ensure best drying results and high process reliability.

BELT DRYING

Modular belt dryer –
suitable for any type of sludge

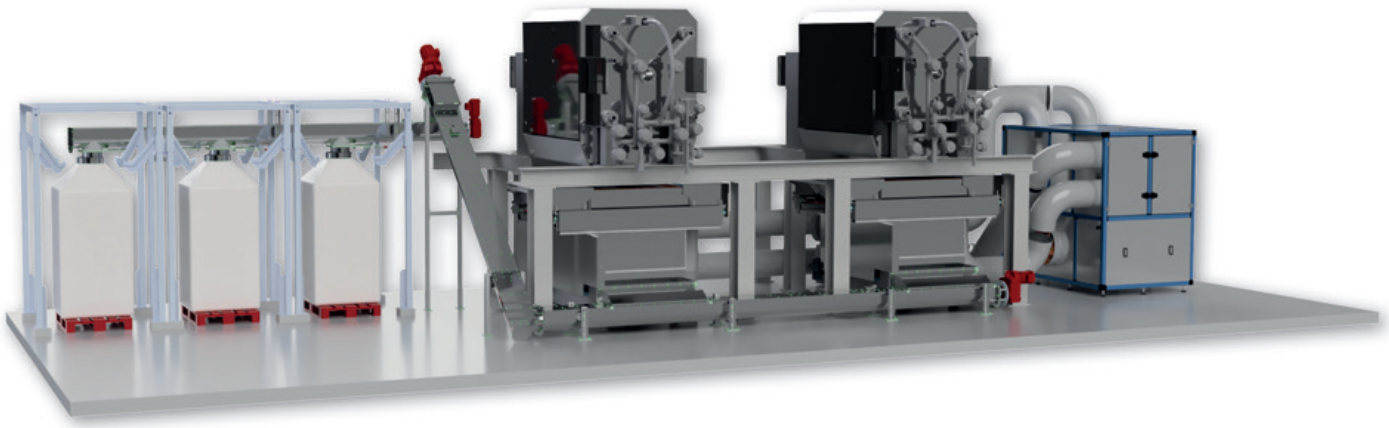
CONTAINER DRYING



Container dryer – particularly suitable for chamber filter pressed sludge

Drymex®-Module	Sludge Quantity kg/24 h	Water Extraction Rate l/24 h*
S3	500	250
S4	1.000	500
S5	1.500	770
S6	2.400	1.200
S7	4.800	2.400
S8	7.200	3.600
S9	9.600	4.800
S10	12.000	6.000

*The maximum water extraction rate depends on the humidity of the material to be dried and the ambient conditions



Automatic sludge drying system – with dust-free filling in bigbags

OUR TEST CENTER

SMALL-SCALE DRYING TESTS

Drying tests in our Test Center are a reasonable approach to determining the parameters relevant for successful drying. We test your product for response to temperature, humidity, time, air speed and airflow rate. The results form the basis for further layout and design. In this process, we draw on solution approaches from hundreds of projects in various sectors of industry.

Agree with us on the sludge quantity required and send us a representative sample. A sample of 2 to 3 kg will often be sufficient. The drying test will show the potential for weight and volume reduction. The sample will then be returned to you.

The dried sludge sample might also help to rediscuss matters with your disposal contractor. We have word of instances where a better classification was obtained for sludge after drying.

Are any valuable substances contained in your sludge? If so, recycling might be considered! You might ideally earn money with your dried sludge.

LARGE-SCALE DRYING TESTS

Tests in our Test Center can demonstrate drying feasibility as such. If test results are positive it may appear reasonable for certain types of sludge to test larger quantities. We offer systems on loan for such tests. You may use these to perform on-site series of tests with sludge quantities of 500 kg/day maximum. You will, of course, be thoroughly instructed by one of our engineers on how to use the loan system.

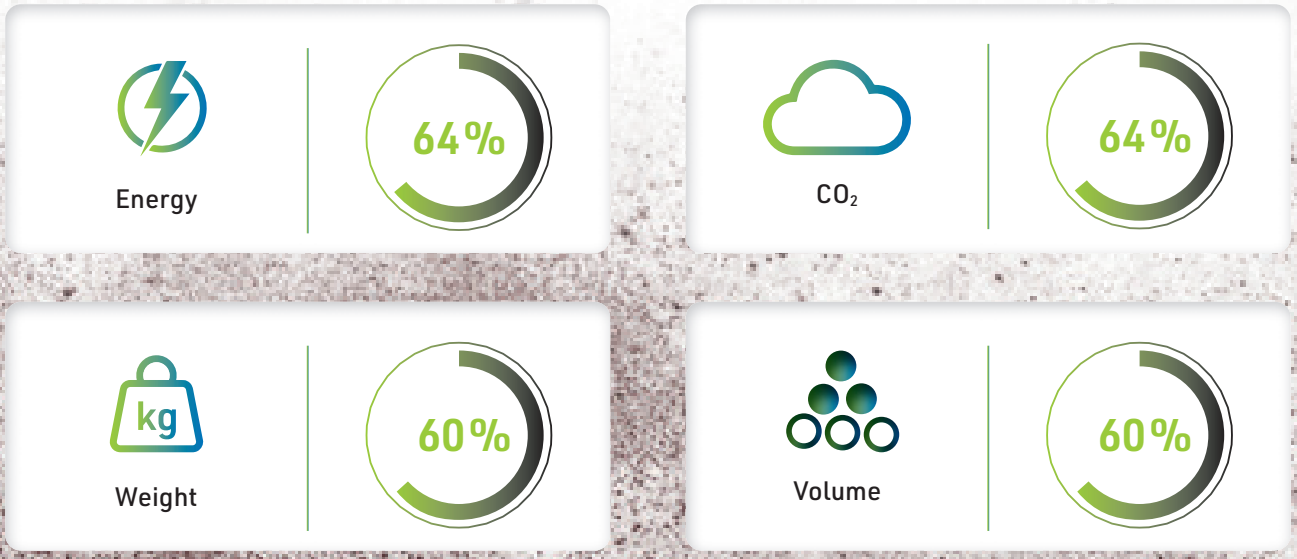
Our loan system includes a 0.5 m³ container.
So, you may dry batches of 500 kg max.

ENERGY AND CARBON SAVINGS BY HARTER DRYING SYSTEMS

Our heat pump drying is energy efficient enough to be classified as technology eligible for government subsidy in some countries. Operators may thus enjoy government grants. Contact us to learn about the current situation.

YOUR BENEFIT

- Lower cost of operation
- Lower consumption of resources
- Independence from fossil energy
- More stable process conditions



COST REDUCTION IN PLAIN FIGURES

1,000 kg
sludge/day

200 Euro
cost/to

200 days
p.a. disposal

COST BEFORE DRYING

40,000 Euro

60 %

COST AFTER DRYING

16,000 Euro

OUR SLUDGE DRYING SYSTEMS HAVE BEEN CONVINCING - FOR DECADES

We have several Harter dryers in operation. The technology is sophisticated and effective. What Harter makes stand out: friendly people, reliable service, good co-operation and open communication.

Stefan Gruber, C. Hübner GmbH - surface finishing contractor

We have been using a Harter sludge dryer in our subcontract electroplating facility for several decades to our full satisfaction. Operation and service are reliable, and have helped to save a lot of money for disposal.

Daniel Hutter,
Verzinkerei Kriessern AG

Drying of heavy metal hydroxide sludge in our waste incineration plant has saved us extremely much money. The system is sustainable and easy to service. In retrospect, investment was a very good decision.

Stefan Ringmann,
KVA Linth -
disposal contractor

BK Giulini GmbH has been successfully co-operating with Harter GmbH for some 20 years. We are very satisfied both with the operation and the reliability of the complete system. Considering the positive experience we have made and the very good service provided we invested in another such drying system in 2023.

Dimitri Baumbach, ICL Ladenburg / BK Giulini GmbH (ICL-Gruppe) – additives for varnishes, paints, the cosmetics and construction industry as well as for food

HARTER
drying solutions

Harter GmbH

Harbatshofen 50
88167 Stiefenhofen
Germany

+49 (0) 83 83 / 92 23 - 0

info@harter-gmbh.de

www.harter-gmbh.de