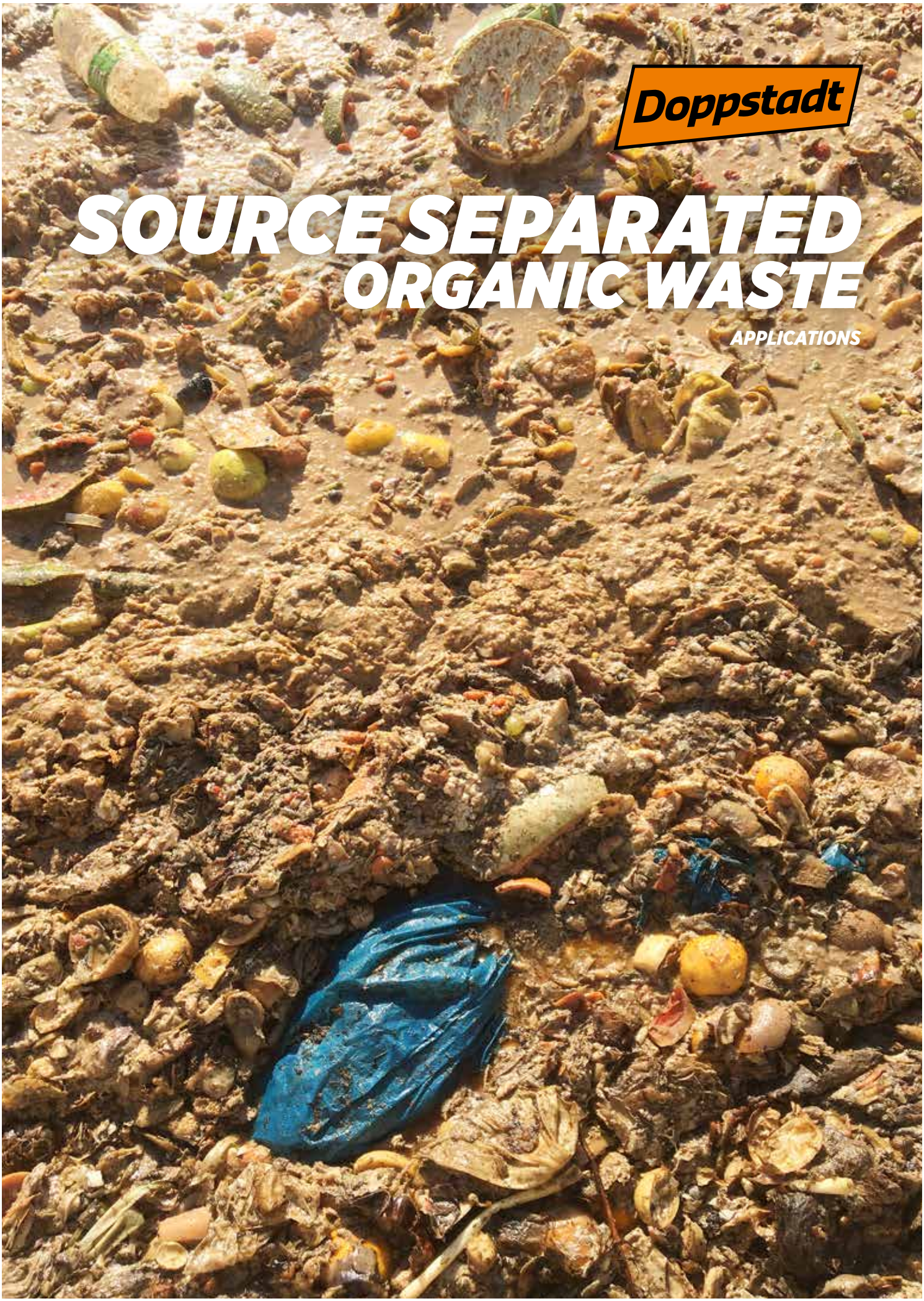


Doppstadt

SOURCE SEPARATED ORGANIC WASTE

APPLICATIONS

SOURCE SEPARATED ORGANICS

Process description for separating biowaste into solids and liquids

Source separated organics (SSO) is separately collected biowaste from private households. This can be separated into a solid and a liquid phase using the Doppstadt screw press (DSP). The same can be done to kitchen and catering waste, overlaid foodstuff, and shop returns.

In the liquid phase, the bioavailable components are enriched and can be fed to a wet fermenter. Due to the gentle bag opening as well as pressing, the digestate usually requires no further treatment and already contains less than 0.5 % of contamination based on dry matter prior to the fermenter.
The solid phase of the waste consists mainly of packaging material and other solids. Organic residues within the solid fraction are converted in the course of composting or biological drying respectively. After a subsequent screening, the packaging residues can be burned. The fine fraction is clean compost.

In case of a dry fermenter, the screw press can turn the digestate into a stackable and thus storable product by separating a pumpable liquid from it. Furthermore, the necessary air permeability is ensured for a subsequent composting if required. The Doppstadt mixer can mix the solid digestate fraction with green waste before it goes into the windrow. This ensures a more intensive composting and better rotting degree.

For the conversion of trapezoidal and flat top windrows up to 3.5 m in height, the Doppstadt side turner DU is a cost-effective and robust solution. The raw compost can subsequently be screened with the screening machine SM, which provides the finished compost.

THIS IS DOPPSTADT

Headquartered in Velbert, Germany, the Doppstadt family firm was founded in 1965. While the company has its origins in developing agricultural machinery, Doppstadt today is a leading, globally active solutions and services provider in all areas of recycling/environmental technology and recyclables extraction.

"Best Solution. Smart Recycling." – With this as our guiding principle, we combine proven processes to create customised end-to-end solutions characterised by innovative processes, optimum efficiency, and maximum cost-effectiveness. Particularly in the areas of water-based separation systems and wet recycling, we impress our customers by providing flexible systems to tackle every challenge. With locations in Velbert, Wülfrath, Calbe, and Wilsdruff, Germany, we serve customers in more than 40 countries through our own dealer network and offer comprehensive services for every product in Doppstadt's unique portfolio.

Solid-liquid separation of biowaste

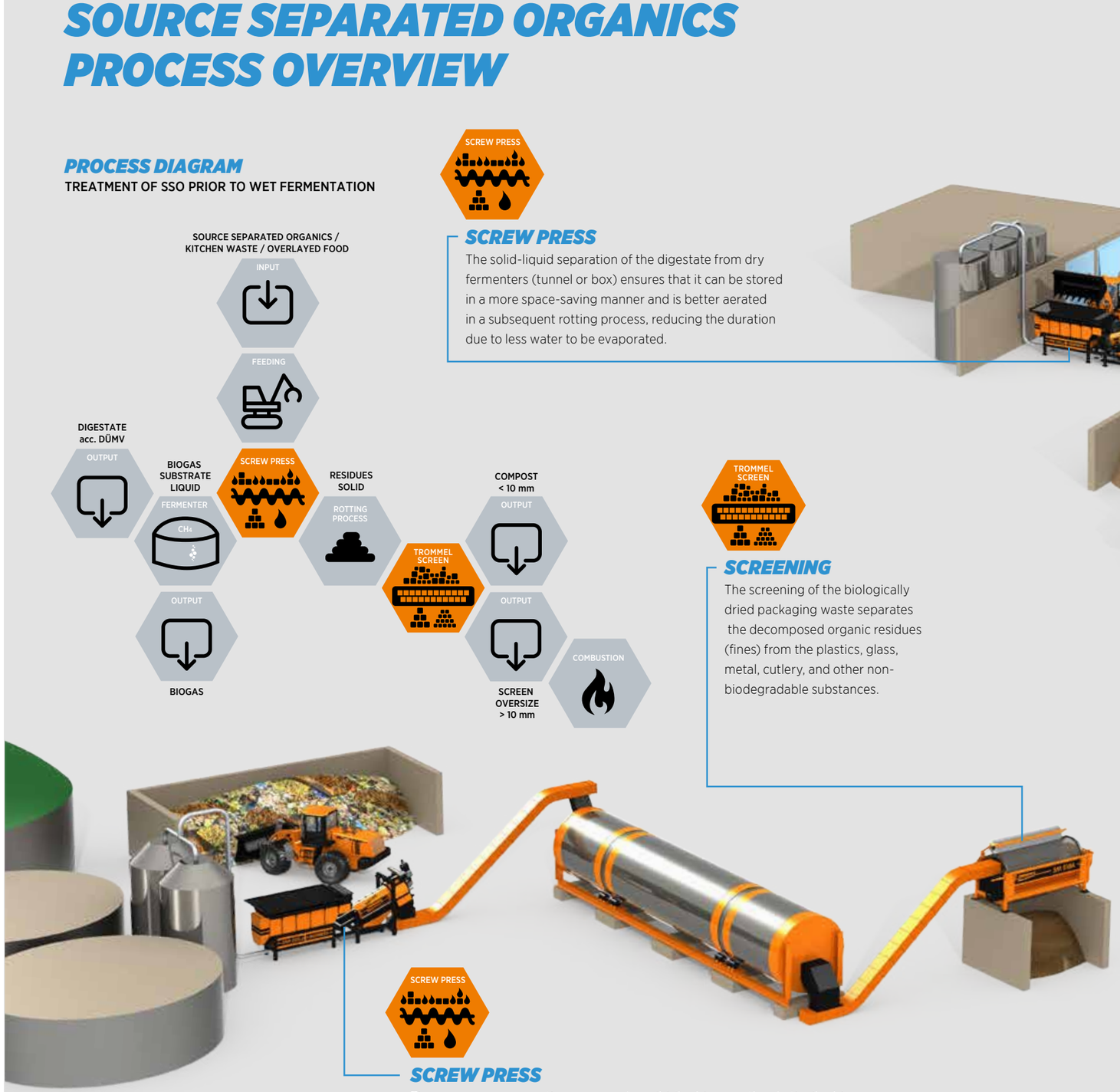
The Doppstadt screw press can be used both as a pre-treatment step for SSO and food stuff prior to a wet fermenter as well as a post-treatment step for digestate after the dry fermentation of mixed green waste and SSO. Equipped with the feeding hopper, the machine homogenizes and opens up bags and containers prior to separation into a solid and a liquid fraction. The focus of the separation is not to gain as much liquid as possible from the feed material, but to provide a liquid, as clean as possible with just one machine without pre-treatment and no further after-treatment required.

The fractions in case of a SSO pre-treatment with the DSP prior to wet fermentation are:
INPUT KITCHEN WASTE (see picture top left or cover respectively)
LIQUID SUBSTRATE FOR BIOGAS PRODUCTION (see picture top centre)
SOLID FRACTION WITH PACKAGING WASTE (see picture top right)

SOURCE SEPARATED ORGANICS PROCESS OVERVIEW

PROCESS DIAGRAM

TREATMENT OF SSO PRIOR TO WET FERMENTATION



SCREW PRESS

SCREW PRESS

The solid-liquid separation of the digestate from dry fermenters (tunnel or box) ensures that it can be stored in a more space-saving manner and is better aerated in a subsequent rotting process, reducing the duration due to less water to be evaporated.

SCREW PRESS

SCREW PRESS

The screw press serves the purpose of a solid-liquid separation. In the liquid phase, the bioavailable portion for biogas production is enriched. Packaging material such as plastic, wood, or metal collects in the solid fraction.

TROMMEL SCREEN

SCREENING

The screening of the biologically dried packaging waste separates the decomposed organic residues (fines) from the plastics, glass, metal, cutlery, and other non-biodegradable substances.

MIXER

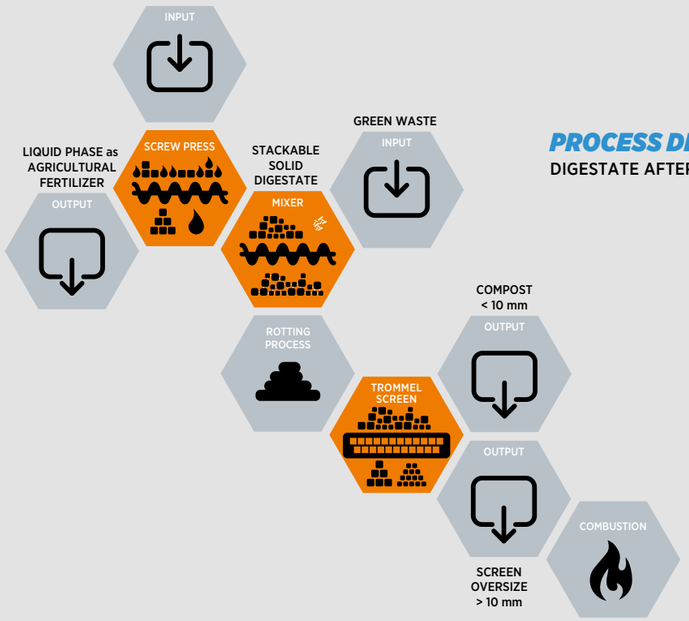
MIXER

Solid fraction of digestate can be mixed with shredded green waste and, if necessary, other additives prior to composting to optimize aeration and pH value.

TROMMEL SCREEN

SCREENING

The compost is screened after rotting. The result is fine finished compost and coarse screen oversize which can then be returned to the composting process as structure material or, depending on its quality, used as biomass fuel in an accordingly specialized power plant.

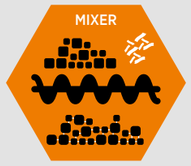


PROCESS DIAGRAM

DIGESTATE AFTER DRY FERMENTER

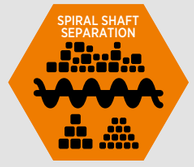
GENERAL VIEW OF MACHINES

SOLID-LIQUID SEPARATION

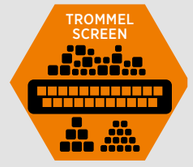


MIXING/HOMOGENIZATION

WINDROW TURNER



SEPARATION/SPIRAL SHAFTS



SEPARATION/SCREENING

MOBILE

DU
DU 265
DU 320

SELECTOR
Selector 400
Selector 800.2
+
SWS
Spiral shaft screen deck

518
518 FLEX

SM
SM 518.2
SM 620 Plus
SM 620 K Plus
SM 620 SA Plus
SM 720 SA Plus

STATIONARY

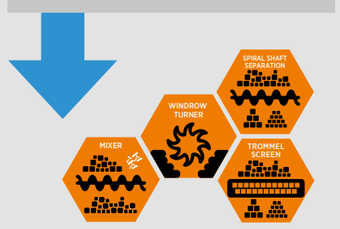
DSP
DSP 205

DM
DM 215 E

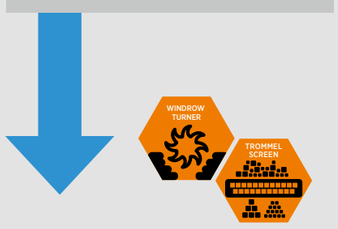
SPLITTER®
Unit 325
Unit 425
Unit 625

SM
SM 518 A
SM 518 F
SM 620 A

SST
SST 518
SST 720
SST 725
SST 1025
SST 1525



Further processing



Further processing

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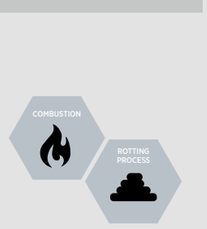

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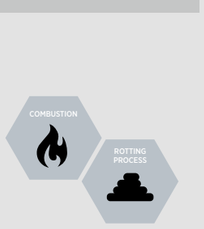

Further processing

Processing source separated organics with Doppstadt solutions

- Elimination of plastic contamination already in the biogas substrate
- Robust solid-liquid separation, tolerant to impurities up to 80 mm in diameter
- No subsequent digestate screening required
- Ideal final composting by adjusting the pH value and structure content

April 2020

Doppstadt

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