

ALTERNATIVE FUEL SOLUTIONS AND STARTER KIT

Consistent, accurate and reliable dosing of alternative fuels and biomass

GET STARTED WITH ALTERNATIVE FUELS

Quickly test and start using alt fuels and biomass with our Starter Kit

KEY BENEFITS

**Flexible solutions and
low-cost installation**

Easy maintenance

Reliable feeding

Integration in existing plant

Get started with alternative fuels in an easy, safe and cost-effective manner with the AF Starter Kit from FLSmidth.

Our complete standard package includes engineering services, equipment supply, and commissioning supervision, shipping on site and spare parts. The solutions are designed to use a wide range of alternative fuels like biomass, RDF, etc.

The AF Starter Kit is a flexible, fast-to-install solution designed to support the testing of alternative fuels in multifuel applications.

It works in combination with the customer's existing storage systems and is suitable for use with front-end loaders or cranes. Fuel is extracted from the reception hopper via a screw bottom mechanism, enabling efficient and controlled handling.

The system offers several configurable options, including capacity, ATEX compliance, reception cover, hopper volume, filter, blower, piping, magnetic separator, screen, and control. This makes it an ideal choice for plants seeking a straightforward way to trial alternative fuels.

Starter Kit solution with receiving hopper and gravimetric dosing includes:

- Drag chain conveyor
- Receiving hopper
- TRW-S/D Rotor Weighfeeder
- Rotary valve / Line charger

To get even more out of your AF Starter kit, add:

- Feedex® overhead reclaimers
- Silo solution
- Feedbox solution
- FEEDflex dosing upgrade for DRW weighfeeders

PFISTER® AF SOLUTIONS PROVIDE

ACCURATE AND RELIABLE DOSING OF ALTERNATIVE FUELS AND BIOMASS

PFISTER® Multi - Fuel Rotor Weighfeeder TRW-S/D

Firing alternative instead of fossil fuels is good for the environment, but tough on your process. Getting the fuel dose just right is imperative to achieving optimum combustion.

Optimise AF use by selecting the right fuel for the firing point.

Fine ground materials are mainly fed to the main burners, whereas coarser materials are fed to the calciner firing points.

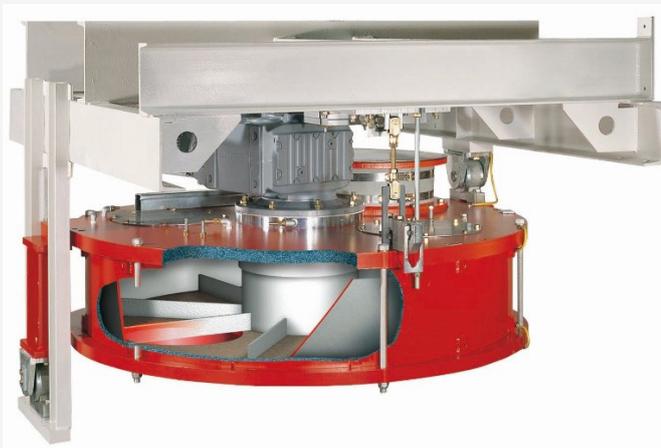


HIGHLY ACCURATE AND RELIABLE GRAVIMETRIC DOSING AND FEEDING

FOR A LARGE VARIETY OF ALTERNATIVE FUELS AND BIOMASS

The Pfister® TRW-S/D rotor weighfeeder is proven to deliver the highest levels of accuracy and reliability, safely and efficiently. The PFISTER® TRW-S/D is based on the same weighing and dosing principle as all PFISTER® rotor weighfeeders models, but has been adapted through extensive research and development to provide reliable and accurate feeding of a wide range of alternative fuels. More than 350 systems in operation are feeding millions of tons year by year.

Typical alternative fuels like Refuse Derived Fuels (RDF), fluff, plastic and paper waste, household waste, packaging and industrial waste and textiles are used in many different conditions, densities, moisture and grain sizes. In particular, biomass (e.g. wood chips, saw dust, nuts husk, olive pomace, rice husk, sewage sludge, animal meal) are increasingly used as carbon neutral fuels to support the reduction of CO2 emissions.



These fuels are hugely variable: dry, moist, chipped, chunky. But they can all be handled by the PFISTER® TRW-S/D multifuel rotor weighfeeder – not different feeders for different fuels, but just one system to manage nearly all solid alternative fuels without mechanical adaptations. It's designed for real life applications where alternative fuel sources are likely to be varied and feed quality inconsistent. All this provides the highest flexibility to optimise your sustainability efforts.

What else do you need from your alternative fuel dosing system?

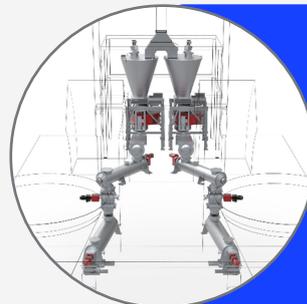
- Stable gravimetric fuel dosing.
- Outstanding reliability.
- High short- and long-term accuracy.
- Compact, robust, enclosed dosing system.
- Optional ATEX or explosion-proof design, A GasEX solution is possible on request.
- Large feeding range.
- Online calibration during operation.
- Easy maintenance.

Pneumatic transport



- For powdered and fine materials.
Typically: RDF wood powder, animal meal, nut husk
- Mainly for main burner and calciner burner/combustion chambers

Mechanical transport

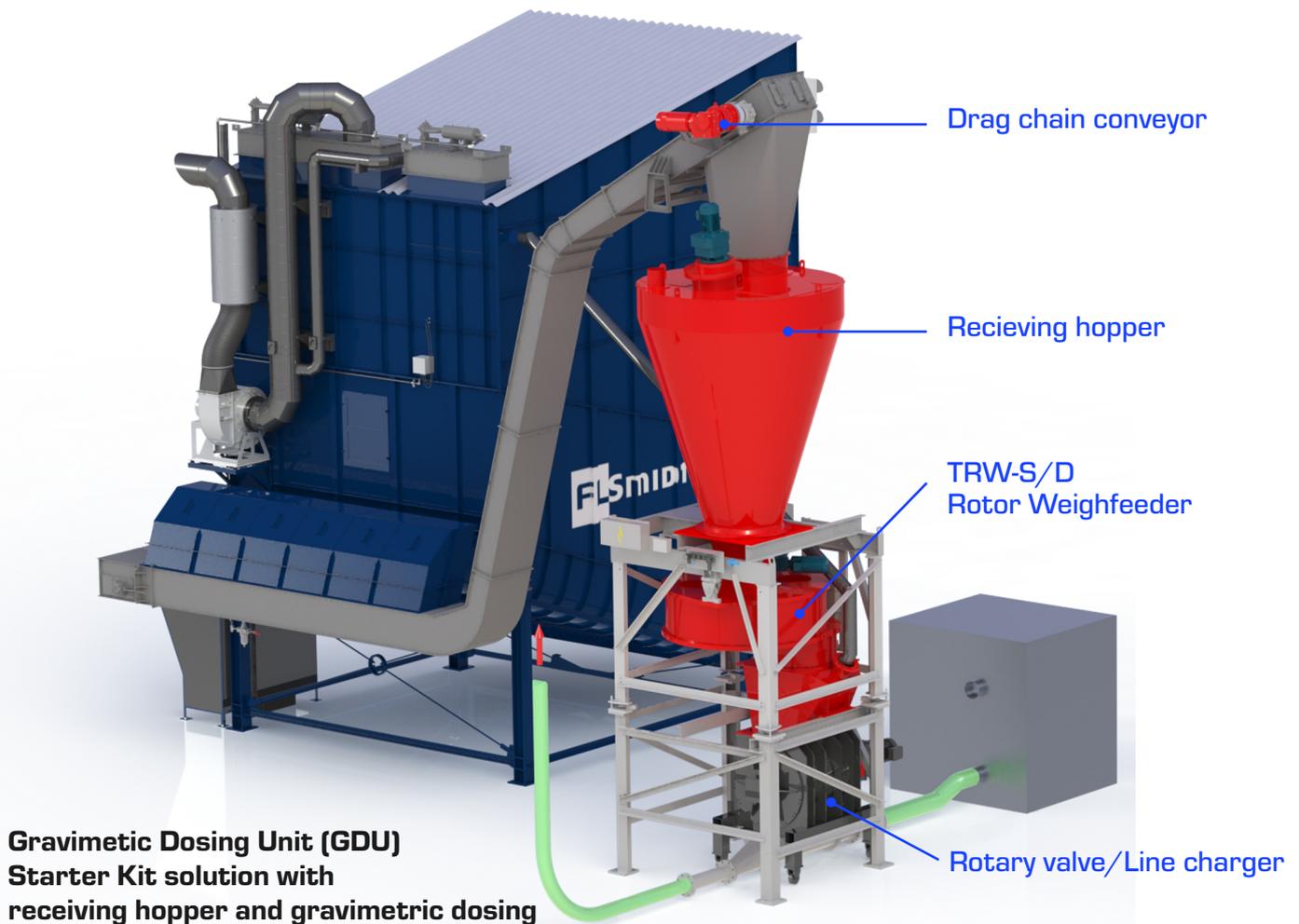


- For fine and coarse materials.
Typically: biomass, RDF, MSW, wood chips, pre-selected or municipal waste.
- For calciner and combustion chambers

QUICKLY TEST AND START USING AF AND BIOMASS WITH OUR STARTER KIT

Get started with alternative fuels in an easy, safe and cost-effective manner with the AF Starter Kit from FLSmidth.

Our complete standard package includes engineering services, equipment supply, and commissioning supervision, shipping on site and spare parts. The solutions are designed to use a wide range of alternative fuels like biomass, RDF, etc.



- Suitable for multifuel applications
- Fast and simple installation for testing AF
- In combination with customer storage of AFs
- Designed for front end loaders or cranes
- Extraction from the reception hopper with screw bottom

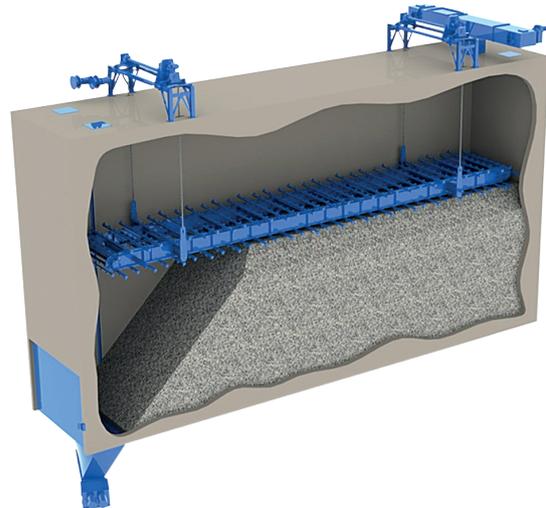
- Fast and simple installation - flexible solution for testing alternative fuels
- Several possible options: e.g. capacity, ATEX, reception cover, hopper volume, filter, blower, pipes, magnetic separator, screen, control

IMPROVE PRODUCTIVITY, ENVIRONMENTAL FOOTPRINT AND ACCURACY

Feedex™ overhead reclaimer

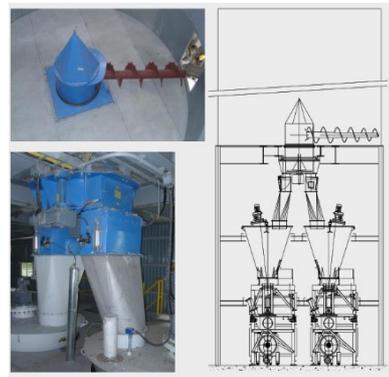
AF can be stored in cylindrical or rectangular cross-section silos, each with different options for materials reclaim, such as a screw bottom, push floor or via the Feedex system. The Feedex system is applicable for a wide range of AF, for example Refuse-Derived Fuels (RDF), Municipal Solid Waste (MSW), wood chips, rice husk and many other materials.

- High volume live storage in an enclosed building
- Optimised for blending fuels and AF homogenisation
- Simultaneous feeding and extraction possible
- Eliminates problems with bridging and clogging
- Ensures complete discharge
- Robust, heavy duty design
- Low energy consumption, cost-effective
- Easy maintenance and service, ATEX certified



Silo Solution

- Scope of supply: silo engineering (volume acc. to customer requests), silo extraction, gravimetric dosing, pneumatic or mechanical feeding
- ATEX / explosion proof execution possible
- Feeding range up to 30 t/h per TRW-S/D
- Up to 4 units under one silo possible



Feedbox Solution

- Scope of supply: hopper engineering (volume acc. to customer request), box extraction, gravimetric dosing, rotary valve, blower
- Designed for crane reception
- Possibility of screen and/or metal separator



FEDEX OVERHEAD RECLAIMER

Optimised fuel blending and homogenisation

The modular design – from a single box to multiple boxes – is flexible to match your needs. You can store different fuel types in separate boxes and blend the fuel to facilitate optimal firing. The system is optimised for blending fuels and ensures AF homogenisation – both in the box and between boxes.

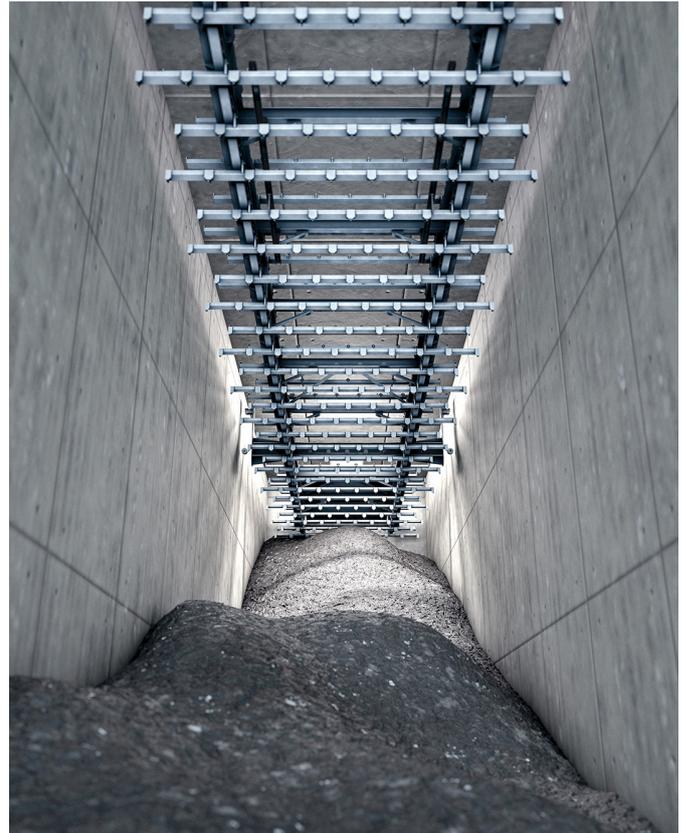
The technology has been proven to handle extreme climates, at temperatures down to -25 °C and up to +50 °C, and the drive in the Feedex frame is designed with a built-in dust filter and a self-cooling motor, maximising reliability.

The system supports a high Thermal Substitution Ratio (TSR), in both the kiln and calciner, significantly reducing fuel costs, helping plants become more sustainable and ultimately lowering the CO₂ footprint.

Safe, reliable and easy to maintain

The Feedex system is ATEX certified and stands out with its safety features. Unlike other systems, the marine-quality hoisting chains mean no loaded wires where plant staff are walking, significantly improving safety.

When the Feedex is combined with the FLSmidth Pfister® rotor weighfeeder TRW-S/D dosing system you get the most accurate dosing of AF into the kiln burner or calciner.



The Feedex overhead reclaimer is suitable for several sizes of alternative fuel:

- Main burner: 30x30 mm (2D)
- Calciner: 100x100 mm (2D)
- Hotdisc®: 300x300 mm (2D)
- Gasifier: 300x300x300 mm (3D) - particles < 1 kg.
- Hotdisc®: 300x300x300 mm (3D) - particles < 1 kg



Feedex™ overhead reclaimer

TAKING YOUR ROTOR WEIGHFEEDER TO THE NEXT LEVEL

SUPPORTING THE JOURNEY TO NET ZERO: PFISTER® FEEDFLEX™

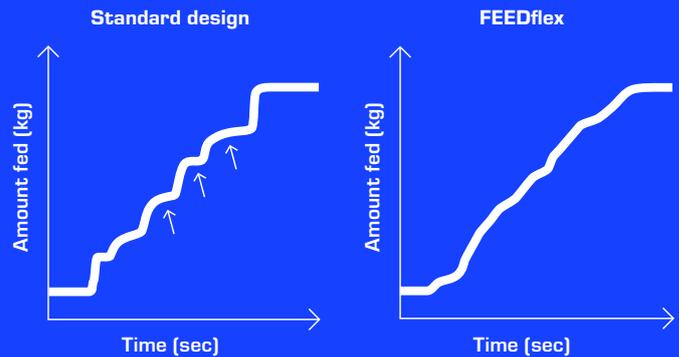


It's time to shift the balance – more alternative fuels, less fossil fuels. But how do you do that and maintain the flexibility required for kiln start-up or when alternative fuels are running low? The answer is the PFISTER® FEEDflex™, with its wide feed range of 1:100.

The Pfister FEEDflex upgrade to the DRW Rotor Weighfeeder enables you to dose very small quantities of pulverised solid fuels, pulsation-free. Feed rates of as little as 60 kg per hour are possible, depending on rotor weighfeeder type. The maximum feed rate is unaffected, so if you need to increase solid fuel consumption, you can – but for the rest of the time, you can leverage all the benefits of alternative fuels.

Pfister FEEDflex is a patented technology and available as a retrofit to existing DRW Rotor Weighfeeders as well as for new DRWs.

COMPARING PERFORMANCE GRAPHS



No linear coal feed at feed rates significant lower than the standard design feed range

Stable fuel dosing at the same significant low feed rates