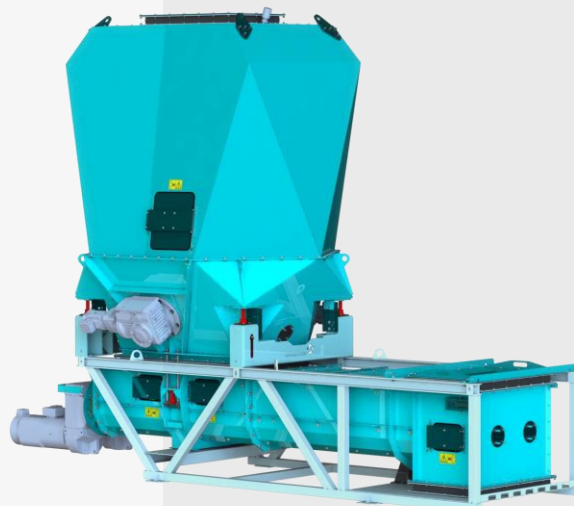


Loss-in-Weight (LIW) Screw Weighfeeder

- Highly stable feeding – deviation under 1%
- Extra coarse material feeding
- Highest feed rate up to 300 m³/h
- Dust tight construction
- ATEX compliant design
- Steady material discharge by screw design and synchronization
- Heavy duty option



Application

The Loss-in-Weight (LIW) Screw Weighfeeder is used for stable and accurate weighing and feeding of bulky solid secondary fuels. The processed material includes all kinds of alternative fuels:

- RDF
- Shredded plastics
 - Textile
 - Paper
 - Rubber (tire chips)

- Biomass
- Wood (chips, pellets)
 - Straw
 - Agricultural waste

- Sludge and Granulates
- WWTP sludge
 - Coal sludge
 - Animal meal

or any mixture of above mentioned



Extra coarse material tested

Equipment

The Loss-in-Weight (LIW) Screw Weighfeeder consists of a hopper and a screw trough, where the hopper is used for short time storage of material used for calibration and for absorbing fluctuations of connected conveying line. The weighing is established by three independent weighing circuits, which are fitted with compact highly accurate load cells transmitting the loads directly to weighing electronics.

Functions

The bulk material is extracted by the screw trough out of the hopper and conveyed towards the discharge with a feed rate controlled via variable frequency drive of the screws. The screw trough is fitted with two screws which increase the control range up to 1:34. It has to be considered that supercharging is used to maintain full torque for el. motor frequency range 5- 87Hz. The unique shape of hopper is equipped with agitators ensuring smooth emptying of the hopper and optimal filling of the screw trough where the hopper is designed to minimize need of agitation. Control of agitator is done by Disocont based on filling information coming from loadcells to prolong the lifetime of moving couples.

Features and properties

- Feeds non-coherent materials in range of bulk densities 0,05-0,8 t/m³ (lumpy, stringy, extra coarse)
- Dust tight construction
- 1% long term accuracy
- 1% deviation (30s running average window for main burner fuel)
- Heavy duty option
- Abrasion resistant option
- Easy maintenance (e.g. "TWO nuts maintenance windows")
- All components from renowned suppliers

ATEX
ATEX Compliant design.

Maximum level sensor
Hopper overfill protection.

Maintenance windows
Designed to easily access and with minimum fasteners used (TWO nuts)

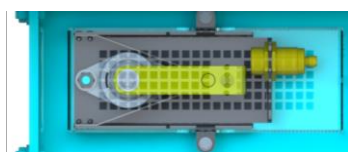
Trough
Robust design. Engineered to feeding solid alternative fuels. Equipped with the blockage signalization flap preventing damage from material blockage in connected technology.

Frame
Designed with stiffness which ensures high weighing accuracy.

Hopper
Serves primarily as balancing buffer for compensation of material flow. Equipped with single or double agitator.

Agitator
Prevents material bridge formation. Optimized for alternative fuels, ensures steady filling of screws.

Gear drives
Automatically controlled by electronics via frequency inverters as per actual state and feeding rate requirement.



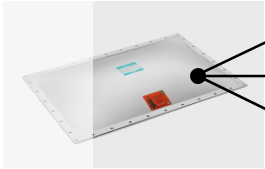
Blockage indicator
Sensor detects blockage in outlet by monitoring an indicator in this small box.



Load cells
Highly accurate load cells are used to monitor and stabilize stable material flow.

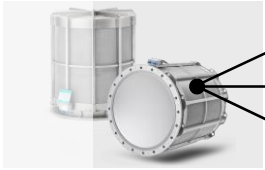
Options

Explosion relief valves



- Reliable pressure relief
- There is no immediate shutdown of the system
- Maintenance-free and serviceable for many years

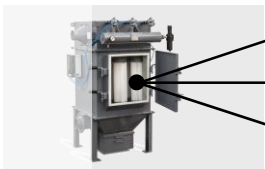
Flameless vents



- Reliable pressure relief without flame
- Maintenance free
- Long service life



Air filtration



- Absorption an explosive dust atmosphere
- Suited for applications where headroom is an issue
- Bags removable via an access door on the side

Variants

- **Standard**—mild steel
- **Abrasion resistant**—hardox
- **Heavy duty**—reinforced loose screw and bearings

Trough

Selected by these attributes:

- Required feed rate
- Material lumps size & abrasiveness

Hopper

Selected by these attributes:

- Volumetric feed rate
- Time to weight calibration
- Method of filling (Mainly flow fluctuations)
- Bulk density
- Space availability
- Material abrasiveness

Screws:

Wrapping of long stripes around the shaft is eliminated by the design of overhung screws

Screw is recommended for these materials:

- Good flow properties typically granulates
- For non-coherent materials: Granulates, sludge, pellets, etc.
- Finer granularity & higher bulk density
- Higher moisture – typically > 20%

Overhung screw is recommended for materials:

- Same materials as screw, but with:
- Higher internal friction and tending to agglomerate
- Higher lumpiness, mainly 2D and 1D with length up to 200 mm

Factors for configuration:

- Volumetric feed rate
- Control range
- Material properties:
 - Material types
 - Bulk density (0,05 – 0,8 t/m³)
 - Lump size (1D, 2D, 3D)
 - Material flow
 - Moisture content
- Hopper filling method
- Space availability



The **trough type** has to be chosen according to the material lump size and maximum volumetric flow. The volumetric flow and material properties result in required drive power. Variant of Loss-in-Weight (LIW) Screw Weighfeeder has to be carefully chosen and designed based on material properties, required feed rates and connected technology.

Trough size selection based on material properties and required volumetric flow				
Trough Ø [mm]	Material lump size Material 3D/2D/1D[1%] [mm]	Material lump size 3D [mm]	Max. volumetric flow [m ³ /h]	Approx. main drive power [kW]
Screw 2x400	< 50/50	< 50	100	5,5
Loose screw 2x400	< 200/1000			
Screw 2x450	< 75/75	< 75	150	7,5 – 9,2
Loose screw 2x450	< 225/1000			
Screw 2x500	< 100/100	<100	200	9,2-11
Loose screw 2x500	< 250/2000			
Screw 2x650	< 150/150	<150	300	15-18,5
Loose screw 2x650	< 300/2000			

LIW Screw Weighfeeder Family		Trough configuration options			
		2 x 400 mm	2 x 450 mm	2 x 500 mm	2 x 650 mm
		max.100m ³ /h	max.150m ³ /h	max.200m ³ /h	max.300m ³ /h
HOPPER Volume [m ³]	6	YES	-	-	-
	9	*YES	YES	YES	-
	12	-	YES	YES	*YES
	15	-	-	-	YES

*Not recommended, only possible for materials with good flow properties

Examples of selections

	Type of construction material	Robustness	Hopper	Trough type	Additional
Examples	Standard	Heavy Duty	12m ³	Loose screw 2x500	Reduced expl. Pressure 200mbar
	Hardox	-	9m ³	Screw 2x450	-
	Hardox	Heavy Duty	6m ³	Loose screw 2*450	-

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