

MultiFlex B/B+/BD

- Highly stable feeding with deviation under 2%, enabled by automatic KME calibration
- Integrated overflow and blockage protection
- Maximum feed rate up to $2 \times 200 \text{ m}^3/\text{h}$
- Dust-tight construction
- ATEX-compliant design
- Consistent material discharge ensured by screw design and synchronization

Application

The **MultiFlex B/B+/BD** is designed for stable and precise weighing and feeding of bulky solid secondary fuels. It is capable of processing a wide variety of alternative fuels, including **Refuse-Derived Fuels (RDF)** such as shredded plastics, textiles, paper, and rubber (e.g., tire chips); **fluff materials** like tyres; biomass including wood (chips, pellets), straw, and agricultural waste; and **sludge and granulates** such as WWTP sludge, coal sludge, and animal meal. The system can also handle **any combination or mixture** of the materials listed above.

Equipment

The **MultiFlex B/B+/BD** consists of a hopper and a screw trough. The hopper serves as short-term storage for material used during calibration and helps absorb fluctuations in the connected conveying line.

Weighing is performed using up to three independent weighing circuits, each equipped with compact, high-precision load cells that transmit forces directly to the weighing electronics.

The **NG+** variant features advanced weighing mechanics, making it suitable for substitution rates above 70% or for main burner applications.

The **BD** variant is a simplified version of the **MultiFlex B**, where the entire system is weighed as a single unit, making it ideal for applications requiring robust and straightforward material flow monitoring.



MultiFlex B with two troughs



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 must 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.

Features and properties

- Suitable for feeding non-cohesive materials with bulk densities ranging from 0.03 to 0.8 t/m³ (including lumpy, stringy, and extra coarse materials)
- Dust-tight construction
- Long-term accuracy: $\pm 2\%$ / $\pm 1\%$
- $\pm 2\%$ deviation (based on 30s / 15s running average window for main burner fuel)
- Heavy duty option
- Abrasion resistant option
- Easy maintenance design (e.g., "TWO nuts" maintenance windows for quick access)

ATEX Compliant design

Hopper

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

Trough

Robust design. Engineered to feed 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.

ATEX

ATEX Compliant design.

Maximum level sensor

Hopper overfill protection

Agitator

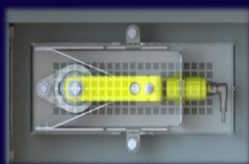
Prevents material bridge formation. Optimized for alternative fuels ensures steady filling of screws.

Agitator position sensors

Used to ensure proper agitation inside the hopper.

Blockage indicator

A sensor detects outlet blockage by monitoring an indicator located inside a dedicated inspection box.



Gear drives

Automatically controlled by electronics via frequency inverters, based on real-time system status and required feeding rate.

Feeding screw

The screw design concept ensures reliable operation and high feeding accuracy.

Load cells

High-precision load cells are used to monitor and stabilize the material flow.



Factors for configuration:

- Volumetric feed rate
- Control range
- Material properties:
 - Material types
 - Bulk density (0,05/0,03 – 0,8 t/m³)
 - Lump size (1D, 2D, 3D)
 - Material flow
 - Moisture content
- Hopper filling method
- Space availability

Trough:

Made of steel, stainless steel or Hardox steel
Selected by these attributes:

- Required feed rate
- Material lumps size & abrasiveness

Hopper

- With one or two troughs

Selected by these attributes:

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

Cylindrical hopper called Bin, has flat bottom with single agitator, possible to be supplied without frame but with supporting ring.

Version B or B+:

In parameters below are fulfilled. B+ is suitable for the application:

- Substitution rate over 70%
- Main burner feeding
- limited calibration possibilities
- bulk densities below 0,03t/m³
- Expected variance in bulk densities

Screws:

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

Screw (SC) is recommended for these materials:

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

Overhung screw (LSC) 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

The trough type:

The trough type must be selected based on the material's lump size and the required maximum volumetric flow rate. These parameters, along with the material properties, determine the necessary drive power. The appropriate MultiFlex B/B+/BD variant must be carefully chosen and engineered according to the material characteristics, desired feed rates, and the specifications of the connected technology.

Main design Options



Explosion relieve vents

- Reduced explosion pressure design required
- Reliable pressure relief
- Maintenance free operation
- No flame protection

Flameless vents

- Reduced explosion pressure design required
- Flameless pressure relief
- Maintenance free
- Long service life



Flameless vents

- Reduced explosion pressure design required
- Flameless pressure relief
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MultiFlex BD unit with one trough



MultiFlex B+ unit with two troughs positioned on opposite sides



MultiFlex B special designed for reduced explosion pressure, equipped with flameless venting

Trough size selection based on material properties and required volumetric flow

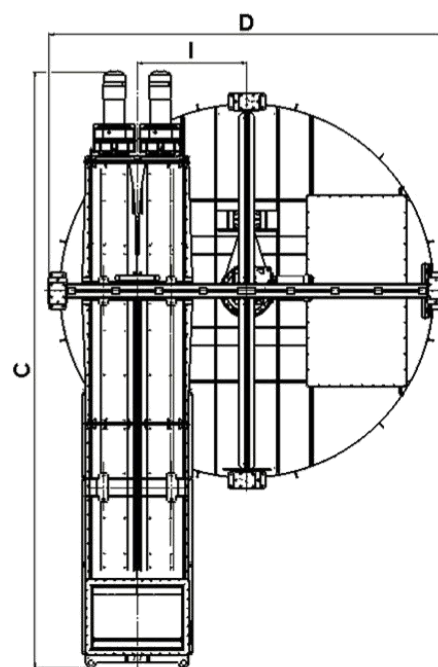
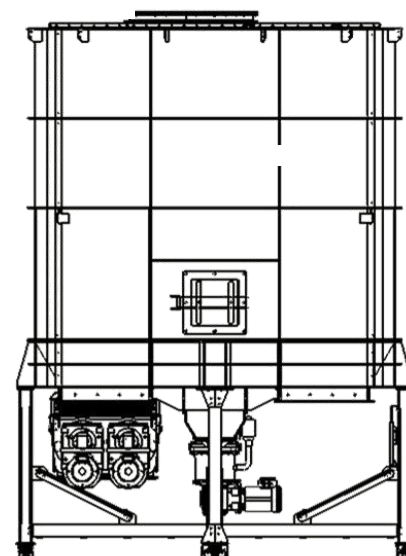
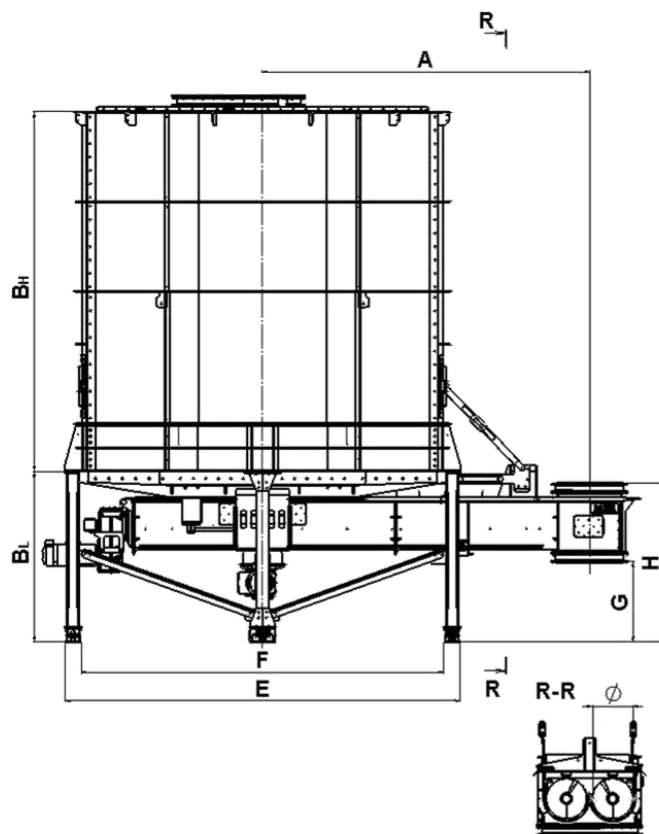
Trough Ø [mm]	Material lump size [mm]	Max. volumetric flow [m ³ /h]	Approx. main drive power [kW]
Double 400	< 50	100	5,5
Double 450	< 75	150	6,0...7,5
Double 500	< 100	200	7,5...11
Single 1000	< 150	300	18,5

MultiFlex family

Trough configuration options

		Trough configuration options					
		Single outlet	Single outlet	Single outlet	Single outlet/ single screw	Double outlet	Double outlet
		2 x 400 mm	2 x 450 mm	2 x 500 mm	1 x 1000 mm	4 x 450 mm	4 x 500 mm
		max.100m ³ /h	max.150m ³ /h	max.200m ³ /h	max.300m ³ /h	max. 2x150 m ³ /h	max. 2x200 m ³ /h
HOPPER Volume [m ³]	20/3 - Cylindrical hopper - single agitator	YES	-	-	-	-	-
	30/3.5 - Cylindrical hopper - single agitator	-	YES	-	-	YES	-
	50/4 - Cylindrical hopper - single agitator	-	YES**	YES	YES**	YES**	YES

** Only for a certain type of material, it must be agreed R&D.



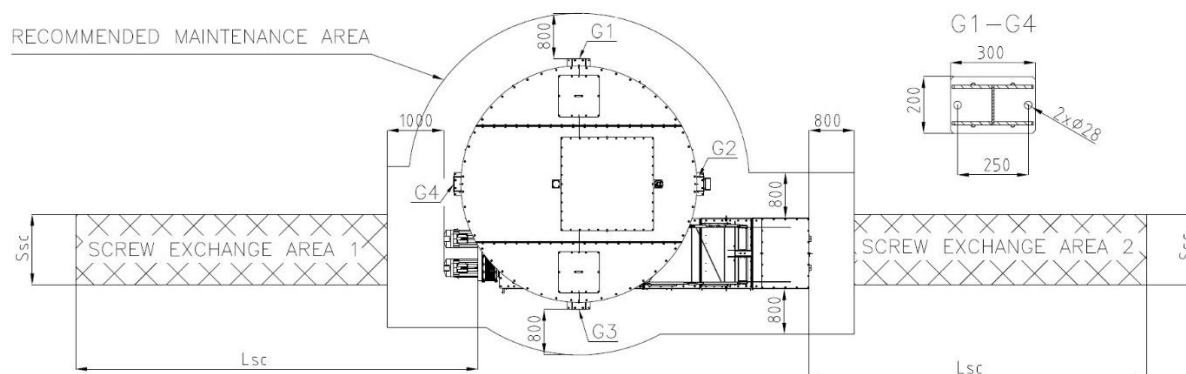
MultiFlex B, B+, BD dimensions

Hopper ØD [m]	3	3,5	4
Max. Hopper Volume [m³]	20	30	50
Trough Ø [mm]	2x400	2x450	2x450 / 2x500 / 1x1000
A [mm]	3420	3420	3650
BH [mm]	$0,5 \cdot \text{ØD} \div \text{ØD}$	$0,5 \cdot \text{ØD} \div \text{ØD}$	$0,5 \cdot \text{ØD} \div \text{ØD}$
BL [mm]	1905	1905	1905
C* [mm]	6370	6340	6667
CC** [mm]	7707	7707	8435
D [mm]	3560	4190	4420
E [mm]	3550	4170	4410
F [mm]	3190	3810	4050
G [mm]	898	898	898
H [mm]	1770	1770	1770
I [mm]	812	1068	1225 - 1280

* May vary due to size of electric drive.

** Applicable for configuration with double trough

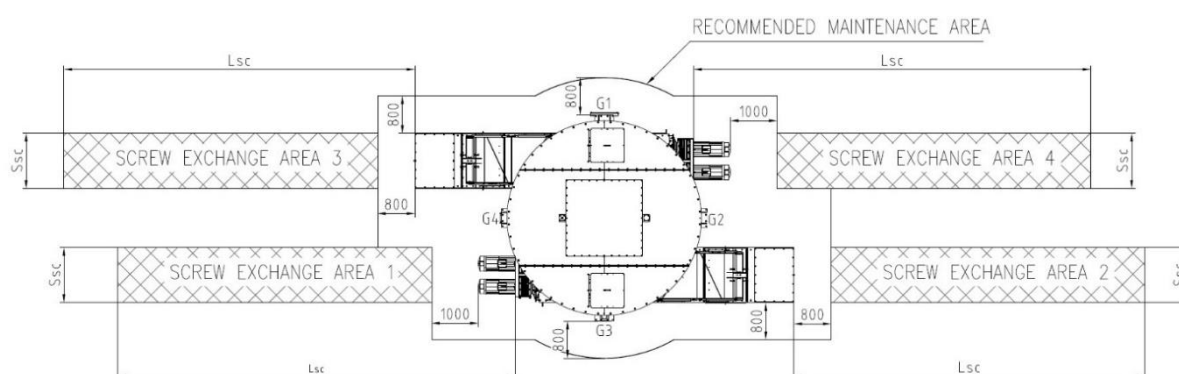
Trough diameter	400		450		500	
Hopper type	SC	LSC	SC	LSC	SC	LSC
L [mm]	5800	5000	5800	5200	5900	5200
S [mm]	1000		1100		1200	



SCREW EXCHANGE AREA 1 OR 2 HAS TO BE CONSIDERED

General Anchor Loads

Trough diameter	400		450		500	
Hopper type	B20	BD20	B30	BD30	B50	BD50
G1 [kN]	27	32	30	38	35	43
G2 [kN]	27	32	30	38	35	43
G3 [kN]	27	32	30	38	35	43
G4 [kN]	27	32	30	38	35	43



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