



# Straw processing technologies

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# Services



Since the early 1970's Cormall developed and engineered machinery for straw handling.

We can offer you our services and over 40 year of experience thus ensure the best possible solution for your straw handling ideas and we have sold these machines all over the world during this time.

Each plant we sell is built to individual customer requirements, whether it be 1 tph or 25 tph, sized down to 100mm or 4mm, dust extracted or natural, mixed or un-mixed, hay or straw, Miscanthus or Cotton stalks, round bale or square, there are many options but we offer the help and advice built up with over 40 years experience dealing with straw.

## Unlimited application possibilities

### **Animal bedding material:**

Dust cleaned straw for horses, poultry... and bagging systems

### **Animal feed:**

Diet feed for horses, cows and pet shop bags

### **Bio fuels:**

Pellet, briquettes, or as loose straw direct into a burner

### **Biological processes:**

Bio Ethanol, Bio gas, mushroom production and composting

### **Building Material:**

Chipboard of straw and insulation panels

### **Packing material:**

Biological packing material

### **Power Plants:**

Systems for 24/7 straw processing in electricity generating plants and anaerobic digesters

### **Waste handling:**

Cutting, chopping paper, plastics and packing wastes





# Your material demands

We can support the technology for any demand you may have for all straw types and prepare the material into the quality that meets your application demands, this includes cleaning out the dust, sand and mud contaminations, sizing the material down in correct length, and fragmentizing the straw length.



Straw after our SBB bale breaker system, keeping the straw loose at almost full baled length.



Straw after our RBS straw shredder system, shortening the straw down to 100 mm.



Straw after being processed in a straw mill with 10 mm screen.



Only a straw mill can crush the nodes in the straw and open up the straw tube, thus making the straw more moist absorbent and giving access for further processing.

# Material obstacles

Below you can find some of the obstacles that can be found with the handling of straw, for which we can offer the solutions:



Automatic string removal can be provided.



Handling of larger steel contaminations is possible without any major breakdown on the line.



Large stones are also handled in the system and without creating sparks and potential fire risk.



Above picture shows the normal contamination's found in our pneumatic stone trap.

# Handling technologies



Moist measuring equipment



Manual bale turner



Automatic loading, mono



Load weighing and moist control



Auto bale turner



Automatic string removal

# Straw processing technologies

## BT 140 and BT 170

straw bale conveyer system: H = 0,65 m



B: Big bales, R: Round bales

W	L	kW	Type	T/h
1,4	3,3	1,1	B	30-35
1,4	5,0	1,5		
1,4	7,5	2,2		
1,4	10	2,2		
1,7	5,0	1,5	B&R	
1,7	7,5	2,2		
1,7	10	2,2		
1,7	12,5	3,0		

Bale feeding table for the filling of straw into the straw handling machinery, and for manual removal of strings, all tables are working with chain and slat, thus making it possible also to convey loose straw.

## RBS 260 and RBS 300

Straw bale shredder system: H = 2,2 m



W	kW	T/h	Bale type
2,6	30	3	All, (reduced capacity on round bales)
2,6	37	4	
3,0	2x 30	6	
3,0	2x 37	8	

Straw shredder working with 1 or 2 rotors, with a rotating tub that moves the material over the rotors and a conveying auger under the rotors that takes the material out under the machine usually to a stone trap and HDH770 hammer mill.

## SBB 1400

Bale Breaker, H = 0,65 m



Knives	kW	Capacity T/h
30 knives	4,0	1
50 knives	4,0	2
108 knives	7,5	3

Straw bale breaker with single Ø600 auger, spring loaded shear bar and auto reverse function to prevent blocking.

## SBB 1800 and TDA auger

Straw bale breaker system H = 2,0 m



Capacity - T/h:	6	10	14	18
SBB 2x 7,5 kW	1	1		
SBB 2x 11 kW			1	1
TDA 2x Ø400	1			
TDA 2x Ø500		1	1	
TDA 2x Ø600				1
Installed kW	23	26	33	37

Straw bale breaker with 2x Ø600 augers, spring loaded shear bar and auto reverse function to prevent blocking and with twin discharge auger for material flow control.

## SBB 2000 For MTX\_H

Straw bale breaker system



L	Knives	T/h	kW
1800	280	10	2x 7,5
		18	2x 11

Straw bale breaker with 2 Ø600 auger, spring loaded shear bar and auto reverse function to prevent blocking to be delivered on a MTX\_H machine or retrofit on a existing MTX mixer.

## MTX\_H 18-50

With TDA auger, scratcher and stone trap



Capacity T/h	4	6	8	14	18
MTX_H 18	1				
MTX_H 22		1	1		
MTX_H 30			1		
MTX_H 42				1	
MTX_H 50				1	1
TDA 2xØ400	1	1	1		
TDA 2xØ500				1	
TDA 2xØ600					1
S 600/400	1	1	1	1	
S 800/400					1
ST 600-400/400	1	1			
ST 600-600/400			1	1	
ST 800-800/400					1

Straw mixer shredder with capacities from 18-50 m<sup>3</sup> with weight cell for load and filling control.



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## TDA Twin discharge auger

Straw feeding auger



TDA	Ø400	Ø500	Ø600
kW 2x	4,0	5,5	7,5
Max length	6,5	7,5	9,0

Discharge auger for load control and smooth flow to hammer mill, can also be delivered with sand and mud screen cleaning.

## S 600 and 800 Scratcher

Conditioning of straw lump's



Outlet W x H	kW	Max T/h
600 x 400	3,0	14
800 x 400	5,5	18

The straw scratcher removes lumps in the straw thus evening the feed to the hammer mill, and also provides good stone trap function.

## ST

Stone trap



Inlet W x H	Outlet W x H	Max T/h
600 x 400	400 x 400	6
600 x 400	600 x 400	14
800 x 400	800 x 400	18

## HDH 770 hammer mill

Straw mill, suction and blowing



System	SBB		RBS	
Screen Ø:	30	10	30	10
22 kW-4	0,6 T/h	0,2 -	1,0 -	0,3 -
30 kW-4	1,0 -	0,4 -	1,5 -	0,5 -
37 kW-6	1,4 -	0,6 -	2,2 -	0,8 -
45 kW-6/8	1,8 -	0,8 -	2,8 -	1,0 -
55 kW-8	2,2 -	0,9 -	3,2 -	1,1 -

The straw mill can also be made as a HDB 770 straw blower, purely blowing straw for pneumatic conveying. The flail rotor can be made with 4, 6 or 8 rotor arms to accommodate different motor sizes. Screens can be delivered from 5-100mm.

## LSM 800, 1000 and 1200

Straw mill, suction or mechanical



kW\Type	800	1000	1200	T/h, Ø30
90	1			3,5
130	1			5,0
160	1	1		6,0
200	1	1		8,0
250		1		10,0
318		1	1	13,0
400			1	16,0
450			1	18,0

The LSM straw mill is an industrial hammer mill for heavy duty performance with high capacity demands. The screen and flail change system is made for quick change and servicing to minimize downtime on the machine.

## CS 500 and 1000

Rotary valves



Type	m <sup>3</sup> /h	kW	H
500	120	1,1	600
750	180	1,1	600
1000	240	2,2	600
1500	360	2,2	600
C 1000	470	3,0	1200

## Suction fan

Ventilator for pneumatic conveying



Type	Nm <sup>3</sup> /h	kW	Pa
25	2500	4,0	2500
60	6000	7,5	
80-1	8000	11	
80-2	8000	37	10000
100	10000	45	
130	13000	55	
150	15000	75	
200	20000	90	

# Straw processing technologies

## SF aspiration filters

Reverse air jet filter



Type	W / H*	m <sup>3</sup> /h
SF 25	1300 / 1500	2500
SF 50	1300 / 2650	5000
SF 81	2000 / 3650	8100
SF 97	2000 / 3650	9700
SF 114	2000 / 4150	11400
SF 130	2000 / 4650	13000
SF 139	2400 / 3650	13900
SF 166	2400 / 3650	16600
SF 195	2400 / 4150	19500

\*) without outlet cone.

## DEU 500 and DEU 600

Dust and sand extraction unit



Type	Screen	m <sup>2</sup>	Seconds	Kg/hour
DEU 500, S:450 rpm: 60, m <sup>3</sup> /h: 117 L: 6m max.	1	0,79	2,2	7000
	2	1,57	4,4	
	3	2,36	6,7	
DEU 600, S:550 rpm: 60 m <sup>3</sup> /h: 210 L: 9m max.	1	0,94	1,8	12600
	2	1,88	3,6	
	3	2,83	5,5	
	4	3,77	7,3	

At 40% filling of auger and with 60 kg/m<sup>3</sup>, you can have the values:

Seconds: The time the material is passing over screens

m<sup>2</sup>: Area that the material is screened over



## SML 2800

Straw mill loader



Ton//h on loader auger x5	S: Auger pitch in mm
0,3-1,0	150
1,0-2,0	210
2,0-2,8	300

The straw mill loader can feed up to 5x HDH 770 straw mills at the same time, the loader is filled from a MTX-H mixer shredder and straw scratcher. The built in level sensor prevents overfilling of the loader.



## MTX BS

Buffer silo



m <sup>3</sup>	2x kW	m <sup>3</sup> /min.	Auger Dia.
10	4,0	1,5	400
12	5,5		
15	5,5		
18	7,5	3,5	600
22	7,5		
30	11		
42	15	6,6	800
50	18,5		

The MTX BS holds and mixes the material, thus ensuring a homogenized material flow for further process. The machine is delivered with weight cell for load control.

## Combinations:

### SBB 1400 and HDH 770

With 1,5 kW feeding auger and 2x stone trap



Screen size	25 mm					10 mm		
	0,6	1,0	1,4	1,8	2,2	0,6	0,8	0,9
Capacity T/h								
SBB 4,0 kW 30 knives	1	1				1	1	
SBB 4,0 kW 50 knives			1	1				1
SBB 7,5 kW 108 knives					1			
HDH 22 kW 4/12	1	(1)						
HDH 30 kW 4/12		1						
HDH 37 kW 6/18			1			1		
HDH 45 kW 8/24				1			1	
HDH 55 kW 8/24					1			1
Installed kW	28	36	43	51	64	43	51	61

### RBS 260 and HDH 770

Incl. tray drive 1,5 kW auger 1,5 kW and stone trap



Screen size	25 mm					10 mm		
	1	1,5	2,2	2,8	3,2	0,8	1,0	1,1
Capacity T/h								
RBS 22 kW	1	1	1			1	1	1
RBS 30 kW				1	1			
HDH 22 kW 4/12	1	(1)						
HDH 30 kW 4/12		1						
HDH 37 kW 6/18			1			1		
HDH 45 kW 8/24				1			1	
HDH 55 kW 8/24					1			1
Installed kW	47	55	62	78	88	62	70	80

# Stainless steel

All machines can be delivered with acid free steel or stainless steel, according to customer requirements.



AISI 316 L, covered and closed insulated MTX\_ETH: Hydrator for chemical processes used for Bio Ethanol production from straw. This is also used on buffer mixers for biogas production.



AISI 316 L, conveying auger for transport of acid material.



AISI 316 L, Stuffing auger for feeding into a biogas reactor, the auger works as a water lock, thus keeping the gas inside the reaktor.

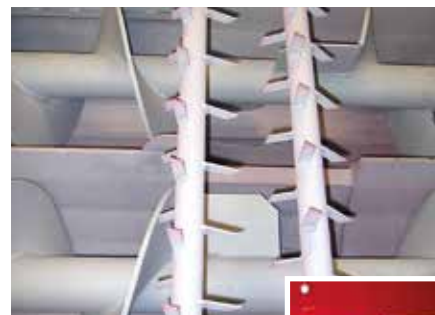
# Accessories



Suction and blower mill for straw spillage, incl. filter cyclone and rotary valve.



Straw burner feeding system and knife gate for back fire protection.

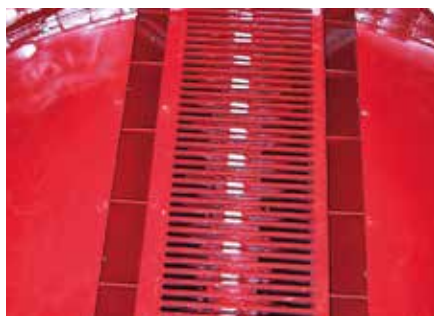


MTX\_A agitator device for homogenizing straw mixed with molasses, removes the lumps.



# Technology principles and differences

The active device in RBS and SBB



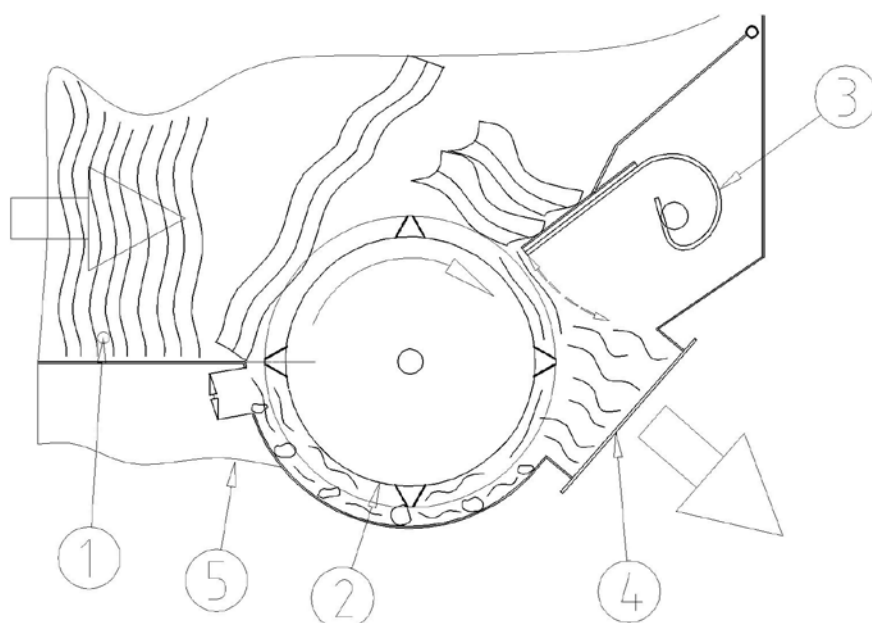
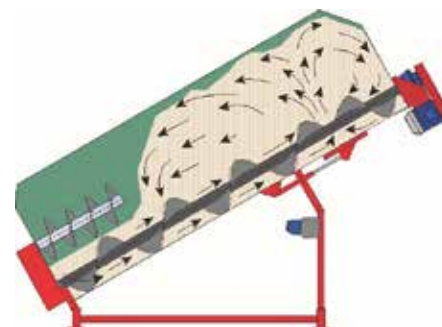
RPM	3000 min-1	60-120 min-1
Power installed	2x 30 kW	2x7,5-11
Capacities Max	6-7 ton/h	15-18 ton/h
Availability, annually	3-4.000 hours	8000 hours
Healt and safety	80-90 dB	55-65 dB

## Moist handling by mixing

The mixing rate in volume is 4 - up to 8 times greater than the material flow coming out of the machine, thus mixing the moist percentages from individual straw bale, and up to 3 bales

## Mixing materials prior to milling

The mixing principle makes it possible to mix different materials, like wheat straw and rape, or other, in the same feeding line for one mill, however we recommend to use the MTX BS, for this after milling the material, this allows greater quantities to be mixed due to the higher density.



## Patent application

PA 2014 00569,

### figure explanation text:

Materials (1) in the pressure bale form, which in the figure is dissolved in its strokes and is moved over one straw roll (2) which is designed as a conveyor screw with an increase of the turn pitch of which is smaller than half the diameter of the roller, and wherein to the outside of the windings are mounted knives. These blades/knives presses the material against a resilient counter-cutting edge (3), which prevents the material (1), and in passing, without being upset, but which also allows very compact material and greater foreign objects to pass without forsaking the blocking of the roller (2). After the shear bar (3) the material (1) is coming to an opening (4) in which the material can be fed out of the invention. Stones and other foreign material fed into the bottom of invention and transported again by the roller (2) below where the straw (1) enters the invention here is made an opening (5) in which stones and other foreign objects may fall out through.





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