Data Sheet	RBS 260	cormall

januar 11, 2021

Picture	
Machine function	Shredding straw from big bales, round bales etc, into a fragmentation of approx 80 mm in average and metering the material for a hammer mill, by first feeding the material into a stone trap at the end of a auger.
Machine number	1013-003, Type: RBS 260
Machine paint	Standard ISO 12944-5 category C2. Machines, guards etc. comes in a color type RAL 3001 red suitable for indoor, non corrosive environment - water and oil resistant -15 to + 60 degrees C, surface purified with alkaline degreaser, painted with a machine primer and here after coating paint.
Custom tariff number	84369900
Standard	DS/EN 60204-1:2006 Safety of Machinery - Electrical Equipment of Machines, DS/EN ISO 13850 of January 29th 2007 emergency stop, DS/EN ISO 13849-1 safety-related parts of control systems, DS/EN 60204-1: 2006, cable installation method E
Power consumption kW	30 kW main motor 1,5 kW tub 2,2 kW auger
Starter and wiring	Shredder rotor: Y/D 7x 6 mm2 Tub: frequency 4x 1,5 mm2 Auger: DOL 4x 1,5 mm2
Motor rpm	Shredder rotor: 3000 min-1 Tub: 1400 min-1 Auger: 1400 min-1
Auger volume 75%	135 m3/h, at 30 Kg/m3 = 4050 Kg/h
Level sensor	Ultrasound, Sick UM 30-214111
Measures	Height: 2200 + 700, Width: 2700
Weight	1800 Kg.

Operation description	The straw bale stamps are falling into the rotating tub where arms are pushing/rotating the straw around and over the shredder rotor in the bottom of the machine. The material level inside the rotating tub is controlled with a level sensor working as a ultrasound sensor. The conveyer table feeding the shredder is stopped when the “high level” (approx. 6-800 mm) is reached, and started again xx sec. after the high level is diapered again. A round rigid plate cover above the rotating tub is keeping the straw inside the machine and prevents spillage of straw out of the machine. There is a rubber sealing between the rigid and rotating tub. The speed of the rotating tub is setting the capacity flow on the line, higher speed = more material throughput. At the bottom in the shredder is placed shredder housing, where the rotating shredder rotor with 82 knifes is shredding at 3000 rpm, tip speed is 47 m/s. The knife rotor is protected by a grid that holds back material, the knifes are shredding between these grid bars. In front and after the grid, is placed a bypass stone trap, this is a 80 mm wide opening along the full length of the rotor that allows stones and other obstacles that are sliding on the bottom of the machine, to by-pass the shredder rotor. The rotor is controlled/watched by a amp watch, and a set point protects it against overload. If the amp usage of the motor is above set point level (adjustable) for more than 0,2 sec. then will the; 1. rotating tub be stopped and, 2. the straw feed table is stopped, until the motors have been under their set point again for more then 3-5 sec. (adjustable). The rotating tub will start again with a ramp of 3 sec. Under the shredder rotor is placed a conveying auger that transports the shredded straw to the stone trap.

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RISK ASSESMENT	Machine: This machine cannot work as a “Stand Alone”, and can therefore not be delivered with a CE marking.
RISK ASSESMENT – ATEX	

BGIA	GESTIS-STAUB-EX	
Material	Stroh (2213)	Miscanthus
Feuchte	-	10,2 %
Korngrösse < 500 µm	96%	56%
Korngrösse < 125 µm	26%	35%
Median-Wert µm	200 µm	280 µm
UNtere Ex-Grenze	125 g/m^3	60 g/m^3
Max Ex Überdruck	8,0 bar	7,7 bar
K_{ST}-Wert [bar m/s]	47	115
Ex-Fähigkeit	St1	St1
Zündtemp.	470 C	-
Glimmtemperatur	310 C	-

Wheat Straw:

Risk for dust explosion depends on the conditions that have to be fulfilled with regard to fragmentation. From above table sheet is important figures as follows:

- Fragmentation must contain 96 % below 0,5 mm.
- The medium length must be 0,2 mm.

Any ware on RBS 260 is average length above 50 mm. And this machine cannot course explosive burning situations.

Analyzed risk following EN-ISO 13849-1:	S	F	P	PLr
1. Mounting: The machine is provided lifting positions that ensures balance when lifting and strong enough to hold machine load. Follow instruction from the manual, when mounting the machine. Work place assessment should be made, before start with mounting.	S2	F1	P1	c
2. Operating: a. In automatic: The machine has to be mounted with a filling device, that provides cover for accidental entering into the machine like Cormall BT 170 straw bale table or similar, and with a closed connected outtake on the auger outtake of the machine, such as cormall stone trap with HDH 770 straw mill, auger or similar device.	S2	F1	P1	c
b. In manual with front loader: The machine must be on same floor level as the loader is driving at, to prevent accidental entering of the machine.	S2	F1	P1	c

3. Servicing: a. All lubrication positions are from a safe position.	S1	F1	P1	a
b. In case of a blocking under the knife rotor, is provided access between the rotor and the conveying auger, through a service door, this door has to be removed by tools and is bolted with safety mothers. Before opening the machine must be turned off on the main switch and locked.	S2	F1	P1	c
4. Renovation: a. Change of knifes inside the machine can happen 2-3 times a year. To change knifes one has to go into the machine. Or use the same door as described under 3b. Access into the machine is provided through filling opening in the top of the machine Before entering the machine must be turned off on the main switch and locked. The filling device must also be turned off. Work place assessment should be made.	S2	F1	P1	c
5. Scrapping/recycling: same comment as under 1. Mounting	S2	F1	P1	c