



Münch-Edelstahl GmbH

WOOD - AND BIOMASS - PELLETIZING TECHNOLOGY



MÜNCH-Edelstahl GmbH

We reserve the right to make changes in technical aspects, material and specifications without prior notice

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MÜNCH-Edelstahl GmbH

Headquarter:

Managing director:

Turnover 2008:

Number of employees:

Joint-Ventures:

Hilden/Germany

Peter Münch, Mirja Gerlach, Sandra Münch

22.9 Mio €

62

2 Production facilities in Germany (4.800 m²)

1 Production facility in France (5.500 m²)

1 Production facility in Ukraine

1 Production facility in Russia

1 Production facility in Southeast Asia



Experience and progress through sustainability and innovation



We are one of the leading worldwide exporting manufacturers of high quality spare parts for pelletmills (including other brands) and complete pellet lines for the...

- Wood- and Biomass Industry
- Agribusiness
- Chemical Industry
- Recycling Industry
- Food Industry
- Waste Industry
- Fertilizer Industry



Individual solutions for optimizing the production processes



Content

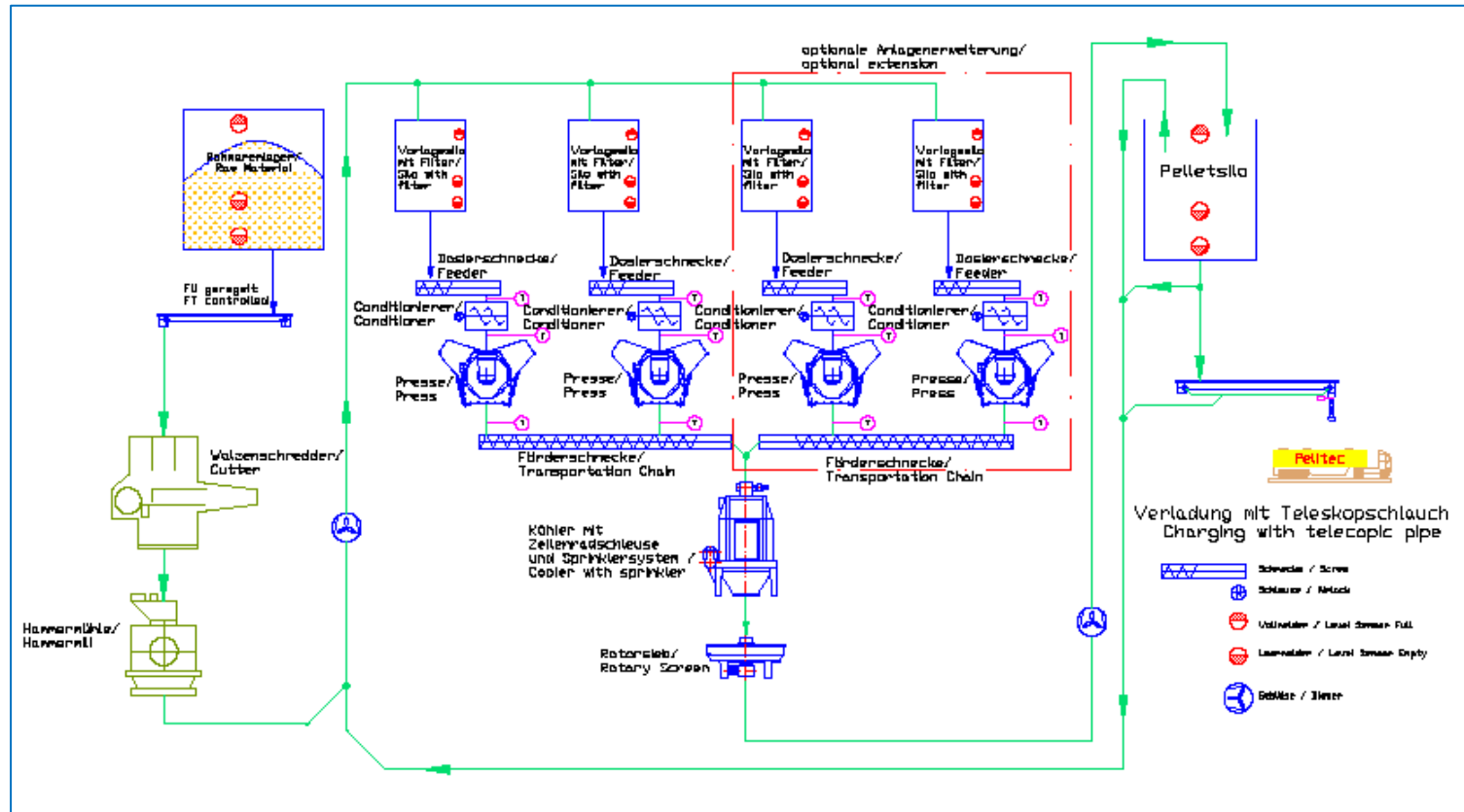
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Exemplary scheme of a wood pelleting plant:



Ringdie Pelletpresss

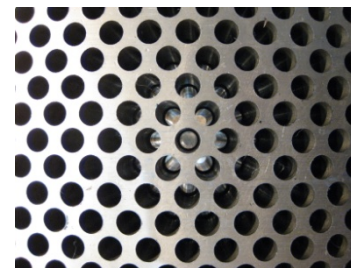
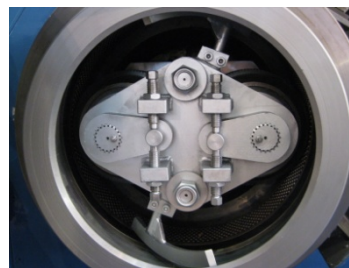
Our Ringdie presses are V-belt driven units with two equal-synchronous drives (optional with only one drive available).

Hereby:

- space savings (drives are mounted onto the machine)
- reduced wear of main bearings
- significantly reduced vibration.

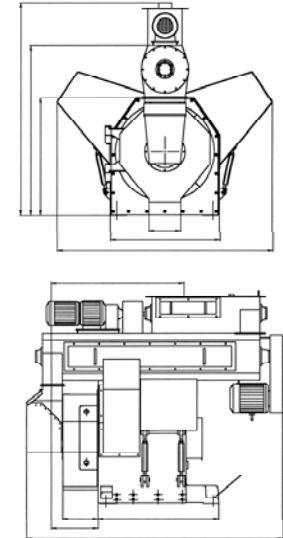


Our pellet presses are characterized by a low-maintenance, a solid and construction and an optimized output.



Ringdie Pelletpress (2)

- stainless steel door with pneumatic overload flap, magnet in the feed-chute and quick lock
- press with automatic control and visualization (optional)
- automatic lubrication or oil lubrication system (optional)
- oil cooling of the rolls (optional)
- forced feeder (optional for straw)
- replaceable wear rings
- shear pin connection

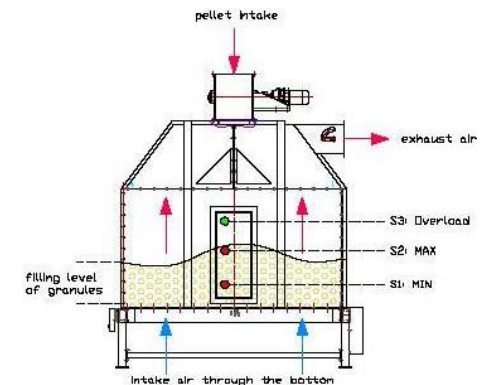


Model	RMP 250	RMP 350	RMP 420	RMP 520	RMP 650	RMP 840
Capacity (to/h) approx. max.	0,1	0,5	1	1,8	2,8	3,8
Press (kW)	17	2 x 30	2 x 55	2 x 75	2 x 110	2 x 132
Mixer (kW)	1,5	3	5	7,5	11	11
Feeder (kW)	0,37	0,75	3	3	3	3
Weight (t)	0,78	2,1	5,0	5,2	7,3	13

Counter-current-cooler

Simple, low-maintenance and robust construction. The cooling air penetrates from the bottom of the cooler through the pellets. The rising heat causes further drying.

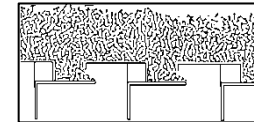
- Hydraulic, pneumatic or electrically driven all-over discharge system with positioning sensors for discharge control
- 3 pcs. level sensors mounted at the door of the cooling chamber
- Electronic temperature sensor 4...20mA for temperature monitoring without evaluation (signal processing performed by third-party control)
- Sprinkler installation (optional - standard for wood pellets)
- Rotary valve on the cooling covering with directly coupled driving motor



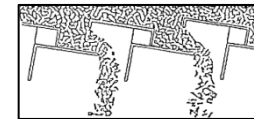
Counter-current-cooler (2)

Execution alternatives:

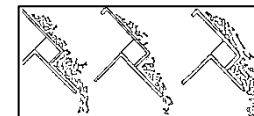
- Moving floor discharge
- Hydraulic discharge system via vibratory trays



Closed



Opening



Open

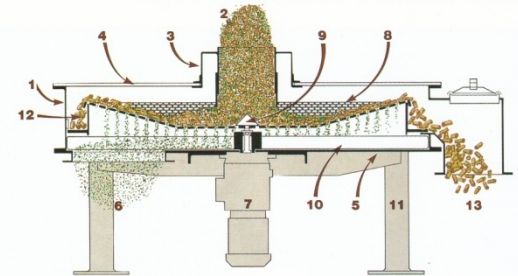
Model	SDCC5	SDCC10	SDCC15	SDCC20	SDCC25	SDCC30
Capacity (to/h) approx.*	5	10	15	20	25	30
Motor (kW)	0,75	0,75	1,1	1,1	1,1	1,1
Volume cooling chamber (m ³)	2,25	4	5,2	7,2	8,9	10,2
L (mm)	2150	2700	2700	3050	3400	3620
B/W (mm)	1680	2200	2200	2550	2880	3060
H** (mm)	2840	2990	3300	3350	3400	3700

*Angabe ca. bei Mischfutter mit Pelletdurchmesser von 6 mm / approx. on mixed feed, dia 6 mm / aprox. con forraje mixto con diámetro de pelets de 6 mm

**Anmerkung / Note: die Angabe zur Gesamthöhe berücksichtigt keinen Ausfalltrichter / The indications of the total height do not include any drop-out funnel!

Centrifugal Screener

- Quick and efficient cleaning of the pellets from abrasion
- Product and fines can be adjusted as desired
- Screens are available in sizes from 0,5 to 10 mm
- Abrasiondeck is cleaned by brushes with every turn
- Optionally available as a 2-deck screen



Model	SCYS 1000	SCYS 1200	SCYS 1500	SCYS 2200
Capacity (to/h) approx.*	3-7	7-9	12-15	20-30
Motor (kW)	1,75	1,75	2,2	7,5
L (mm)	1120	1310	1610	2300
B / W (mm)	1100	1300	1600	2288
H (mm)	650	925,5	925,5	1182

*Average, depending on perforation

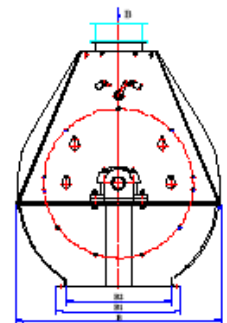


Hammermill

- Two turning directions of the rotor to ensure maximum usage of the hardened beaters
- Adjustable air relief system
- automatic load control (optional)
- Spring clamp system for a quick and safe changing of non-welded screens
- Stonepocket at the bottom



Model	SDHM 5	SDHM6	SDHM 8	SDHM 10	SDHM 12	SDHM 14	SDHM 15	SDHM 16	SDHM 20	SDHM 30
Rotor dia (mm)	708	708	708	708	708	1370	708	1370	1370	1370
Width of gr. chamber (mm)	305	305	355	355	508	355	742	355	484	742
Main Shaft (UPM/RPM)	2950	2950	2970	2970	2970	1480	2970	1485	1485	1485
No. of Beaters	54	54	72	72	90	54	112	54	74	112
Motor (kW)	30	37	55	75	90	90	110	110	160	200
Screen Surface (dm ²)	65	65	75	75	105,6	142,1	152,4	142,1	190,5	287,3
Air requirement (m ³ /min)	35	35	40	40	55	70	70	70	95	145



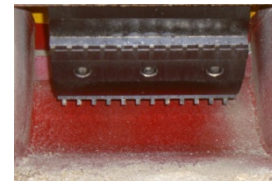
Chop-mill

The Münch-Chop-mill combines an original type crushing machine with a drum type crushing machine into one machine.

- sturdy design (proven solid steel welded structure)
- low maintenance cost
- obtain a homogeneous, powdery product for subsequent processing steps
in just one step

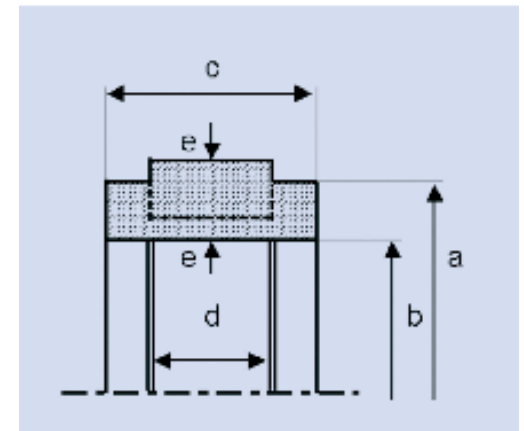


Model	DECM 300	DECM 350	DECM 400	DECM 500	DECM 600
L (mm)	3800	4000	4000	4500	5500
B / W (mm)	2100	2200	2300	2400	2500
H (mm)	1900	1950	2000	2100	2200
Crushing width (mm)	300 x 300	350 x 350	400 x 400	500 x 450	600 x 500
Motor (kW)	90	130	150	180	220
Capacity chips approx. (to/h)	14-16	18-23	20-25	23-30	30-40
Capacity saw dust approx. (m3/h)	20	25	35	45	65
Weight (kg)	3000	3500	3800	4000	4800



Dies and Rollers

- Gun-drilled, high-mirror-finished, vacuum-hardened chrome steel dies for all pelletmill brands worldwide
 - Fully automatic, 24-hours a day and 7 days a week production
 - Rollshells with any required surface
 - Permanent stock with 150 dies and 800 rollshells
 - Blanks for approx. 1.000 dies and 5.000 rollshells
-
- Capacity:
 - approx. 5.000 dies and 12.000 rollshells / year
 - max. die dia 1.600 mm
 - die hole dia 1,2 bis 50 mm



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Reference projects

Reference Project: Wood pellet plant

Place: Norway

Capacity: 48.000 to / year



Reference Project: Wood pellet plant

Place: Germany

Capacity: 120.000 to / year



Contact details

Münch-Edelstahl GmbH

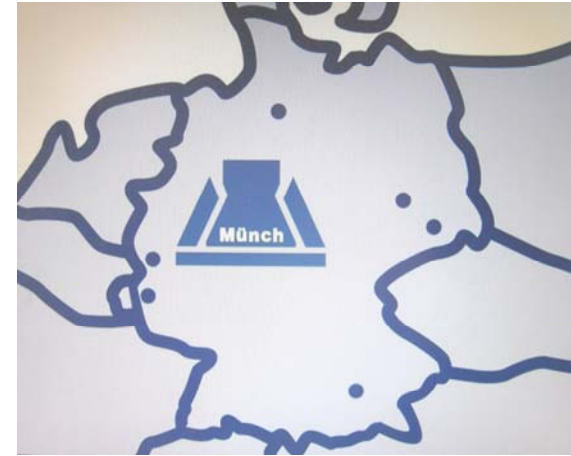
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Process description

(example of wood pelletizing)

Overview

Basically, for a wood pellet plant the following components are necessary:

- Raw material silo
- Pre-grinding or -shredding
- Drying
- Intermediate storage
- Hammermill to reduce the particle size
- Pre-pellet bin for continuous feeding
- Feeder
- Conditioner / Additives
- Pelletmill
- Pellet cooling system
- Screening device
- Aspiration
- Pellet storage
- Transport modules between the components
- Control system

Raw material silo / Pre-grinding or -shredding

In the raw material silo, the tree trunks are stored and singled out by means of a feeding device, brought into flow direction and fed into the pre-grinding. A disc or drum shredder is used for pre-grinding. Here, whole trunks can be reduced to chips of approx. 2 -7 cm.

Disc shredders have the advantage of producing a more homogeneous and somewhat finer particle size, whereas the drum shredder makes chips with a fibrous structure.

Drying

After the size reduction, the chips are transported to the drying unit. For drying the chips, a drum dryer unit as well as so-called bed dryers or belt dryers can be used. The principle of the dryers is similar. Heat in the form of water or steam is produced by means of a burner and transported over a heat exchanger.

A **fan** is used for a good ventilation and for transportation of the chips; it sucks the air necessary for proper operation through this heat exchanger and heats it. The thus treated surrounding air is used for drying as well as chip transport.

Intermediate storage

After the drying process, the chips are separated from the transportation air by means of a **cyclone** which is placed above the intermediate silo. The outgoing air is vented over the roof into the open air and, if necessary, small dust particles are filtered out.

The intermediate silo for chips is at the same time a buffer storage between drying and pelleting in order to safeguard a constant drying process and offer the opportunity to supply additional chips by truck. A robust hydraulically driven **thrust floor discharge** on which front-loaders can be operated is used for discharge in the intermediate silo.

Grinding

From there, the chips are ground by a subsequent **hammer mill** to a particle size suitable for pelleting. For operating the grinding unit we apply a cargo-dependant admission to the mill. Thus, the hammer mill is 100% charged to capacity, which reduces the susceptance to failure.

The mill is aspirated because it generates internal air through the operation.



Feeder

The continuously adjustable feeder ensures a cargo-dependant charging of the press in order to reach an optimal working of the machine at all times.

Conditioning / Additives

There are different ways for adding additives like water, starch and steem. Depending on the process we apply a fast-running horizontal mixer with adjustable mixer paddles or a so-called ripening container with integrated heating and a mixing device with a long sojourn time of the raw material. In most cases, however, the application of the horizontal mixer will be sufficient, which also is the more economic alternative.

In most cases, the use of a horizontal mixer is sufficient and the much cheaper alternative.

A **manual water addition** is already grown. The connection for the addition of steam is provided as blanking plug.

Pre-pellet bin

At the end of the conditioner the conditioned chips fall into the pre-pellet bin. The pre-pellet bin is to ensure a continuous charge of the press, but also to let rest the chips mixed with water and starch. After a certain residence time in the bin a homogeneous mixture and humidity is achieved. This is very important for a smooth running of the subsequent **pellet press**. The optional integrated mechanic forced discharge prevents arching and guarantees a faultless operation of the system. During normal operation, the installed level sensors prevent an overloading as well as a complete emptying. This is important to attain a full 100% rate of admission in the feeder.

Pelletpress

It is in the pelletmill where the actual production of the pellets takes place. The treated raw material enters the press cavity from the front and is compressed under high pressure through the **die** built in the machine. The pellet discharge is at the bottom of the machine. At this point, the pellets are still soft and little resistive and it is here that the risk of breaking is greatest. They only reach their final state of firmness and hardness during the subsequent cooling process.

Cooling

A so-called **counter-current cooler** is used. Due to the special cooler construction, surrounding air is sucked through the cooler floor and through the adjustable pellet layer.

The cooler floor is impenetrable to pour able product but still permeable to air. The lamellar construction guarantees a complete emptying if needed. It prevents damp clusters or conglutinations. An arching in the cooler is impossible.



Screening / Aspiration

A guarantee of a full 100% absence of dust cannot be given with any form of pelleting. In order to reduce the percentage of dust to an acceptable level, all pellets are screened and passed through aspiration.

One outstanding feature of our **rotary screeners**, which have been designed especially for this task, is their operation low in vibration and their high capacity. In combination with the connected aspiration we therefore get a reliable system with optimal efficiency and good reliability.

Alle screened and aspirated fines are be led back to the intermediate storage.



Storage

After leaving the screen the pellets are ready for further usage such as transport, storage, shipment, etc. Now they are hard and close to dust-free.

Pellets can be stored in commercially available silos as well as in open storage bins for loose loading.

For the operation of small packing drums, the installation of a bagging device as well as a BIG-BAG bagging is possible.

Control unit

The control system is carried out by a efficient SPS. Different models are being applied here as for example automatic control of the entire line with or without visualisation or just a simple manual control.

The choice depends on the size of the plant and the requirements. Also, a connection to a superset control system or an analysis of the operational parameters are possible. Our control systems are **individual solutions** according to the requirements of the customer.

Excerpt most remarkable references, only wood and biomass

Year	Capacity / year	Place	Project
2003	30.000 t	Petersburg / Russia	Wood pelletizing
2004	30.000 t	Archangelsk / Russia	Wood pelletizing
2004	30.000 t	Latvia	Wood pelletizing
2004	80.000 t	USA	Wood pelletizing
2004 – 2005	100.000 t	Sweden	Wood pelletizing
2006	25.000 t	Latvia	Wood pelletizing
2006	60.000 t	USA	Wood pelletizing
2006	30.000 t	USA	Wood pelletizing
2006	25.000 t	Latvia	Wood pelletizing
2006	48.000 t	Norway	Wood pelletizing
2007	150.000 t	Germany	Wood pelletizing
2007	20.000 t	Finland	Wood pelletizing
2008	20.000 t	Germany	Wood pelletizing

Excerpt most remarkable references, only wood and biomass (2)

Year	Capacity / year	Place	Project
2008	15.000 t	Poland	Straw pelletizing
2009	12.000 t	Russia	Wood pelletizing
2009	30.000 t	Korea	Wood pelletizing
2009	20.000 t	Russia	Wood pelletizing
2009	20.000 t	Bulgaria	Wood pelletizing
2009	24.000 t	Sweden	Wood pelletizing
2009	12.000 t	Poland	Wood pelletizing
2010	25.000 t	Belarus	Wood pelletizing
2010	90.000 t	Thailand	Biomass
2010	25.000 t	Thailand	Wood pelletizing / Hard wood
2010	24.000 t	Austria	Wood pelletizing
2010	40.000 t	Belarus	Wood pelletizing
2010	20.000 t	Portugal	Wood pelletizing / Hard wood
2010	12.000 t	Russia	Wood pelletizing