TECCON

PELLET.TOWER

PELLET PRODUCTION MODULE
2.5 TO 10.0 T/H

Installation of PELLET.TOWER

PELLET.TOWER

PELLET PRODUCTION MODULE 2.5 TO 10.0 T / H

TECHNOLOGY

The production chain in a wood pellet plant can be divided into three main sections:

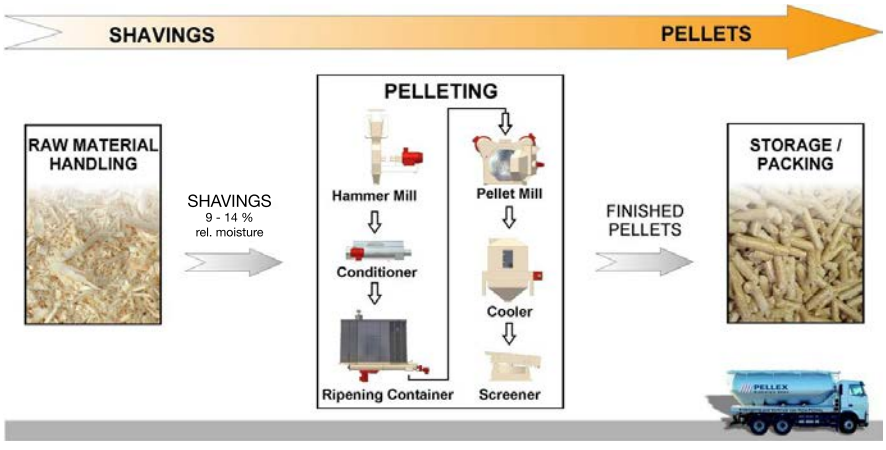
- Raw material handling & processing consisting of shavings receiving, storage, conveying, and – if necessary – a dryer for moisture reduction
- Pelleting for the production of the pellets from the raw material
- Pellet storage and packing and/or truck loading

Pelleting is the main process of the production chain. It includes the process steps of:

- Raw material grinding
- Moisture regulation including conditioning and ripening container
- Pellet milling
- Pellet cooling
- Pellet screening

These main process steps are integrated into the TECCON PELLET.TOWER.

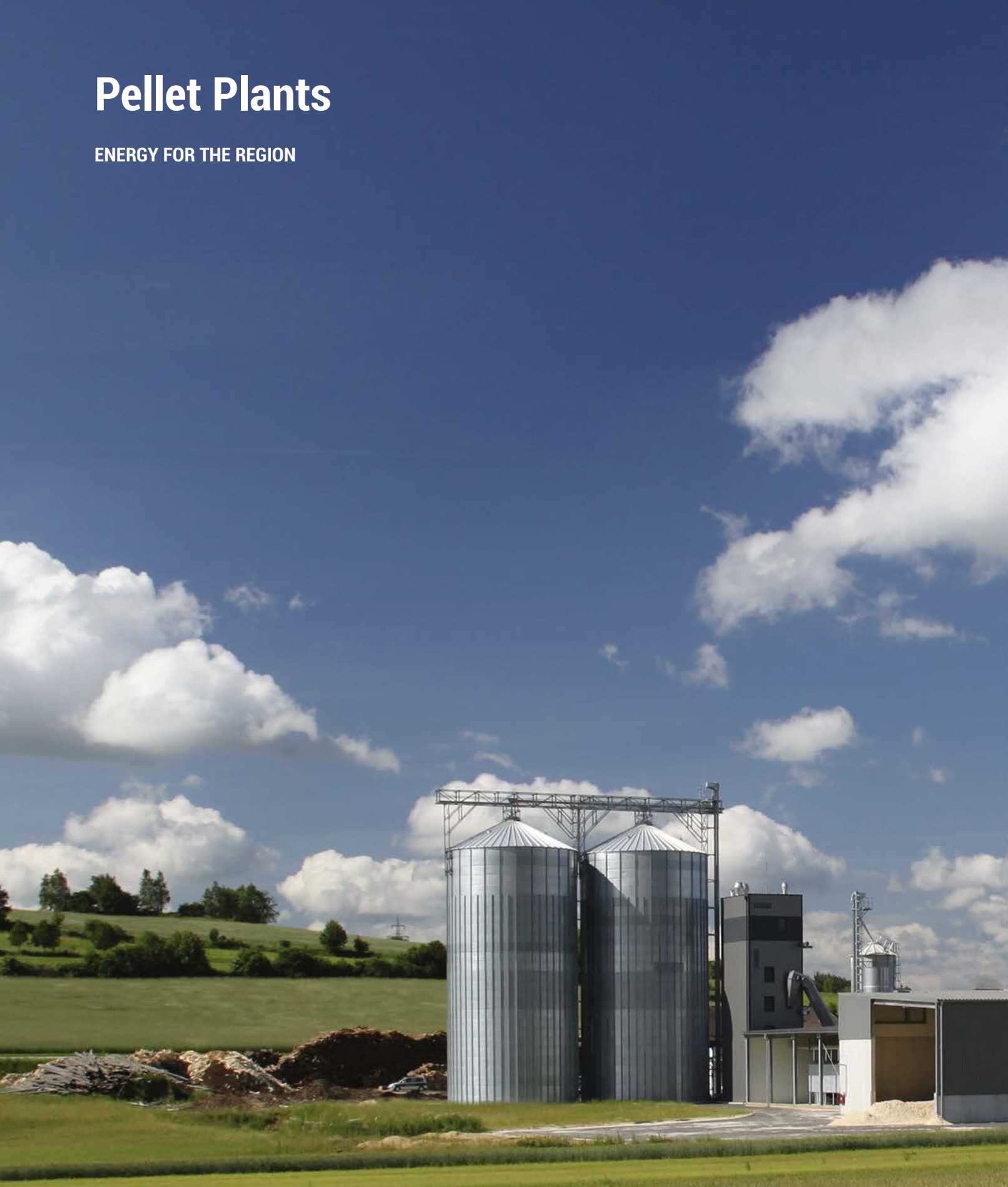
The PELLET.TOWER in operation at the NORICA pellet plant



Manufacturing process of wood pellets

Pellet Plants

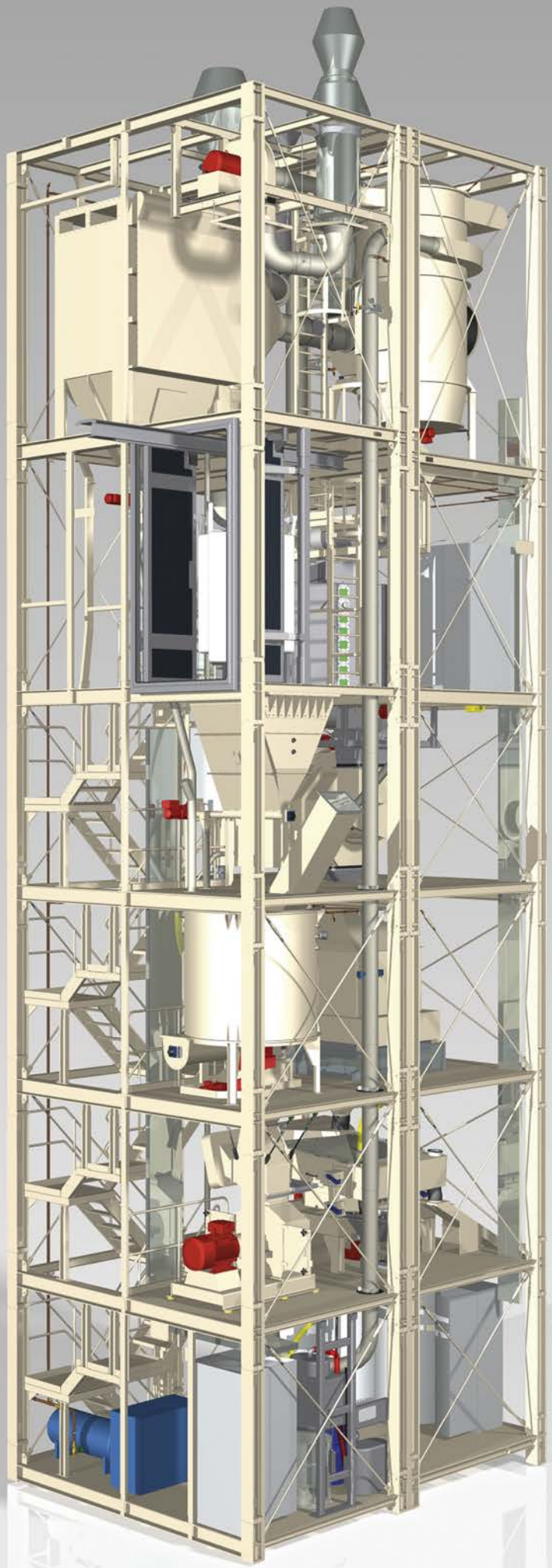
ENERGY FOR THE REGION



The Pelletwerk Waldviertel plant produces 30.000 tons of pellets annually. The pellet plant's centerpiece is the PELLET.TOWER. TECCON's firsthand experience as an owner and operator of a TECCON pellet plant as well as TECCON's diligent engineering philosophy are the basis for the realization wood pellet projects with high profitability and low investment risks.

With years of experience in operating an own built wood pellet plant and prudent engineering craftsmanship, TECCON ensures low investment risk and high profitability in the realization of projects for the production of wood pellets from sawmill by-products.

TECCON is well-recognised for its innovative and patented PELLET.TOWER pelleting modules, which are characterized by user-friendly, high-quality technology.
Additionally, TECCON provides pellet plant key technologies like wood fiber grinding, drying, storage, and conveying solutions.
TECCON offers a comprehensive range of services for the entire life cycle spanning from early stage project consultation to plant and/or process optimisation of existing pellet mill operations.



Product Description

PELLET PRODUCTION MODULE 2.5 TO 10.0 T / H

COMPACT PELLETING MODULE

The PELLET.TOWER, developed by TECCON Konstruktionen GmbH, is a patented compact pelleting module for the production of high quality wood pellets in accordance with EN 14961-2 property class A1.
The production capacity of the PT series ranges from 2.5 t/h to 6.0 t/h, which corresponds to an annual production capacity of 15.000 to 45.000 tons.
The P2T series provides production capacities of 6.0 t/h to 10.0 t/h, resulting in an annual production capacity of 45,000 to 75,000 tons. With additional PELLET.TOWER modules, the production capacity can be extended at will to match user requirements.

MAIN COMPONENTS

The main components of the PELLET.TOWER are:

- Feeding bin for raw material
- Binding agent adding
- Milling system including material/air separator
- Conditioning and ripening container including moisture regulation
- Pellet mill with feed spout
- Counter flow/fluidised bed cooler
- In-line weighing system
- Screening with fine particle recirculation to the raw material intake

as well as all additional equipment required for operation

- Air pollution control system
- Compressed air supply
- Fire and explosion protection devices
- Electrical and C&I equipment including visualisation and production data collection

The PELLET.TOWER is completely self-contained steel structure enclosed with insulated sandwich panels and weatherproof cladding; no additional building or structure is necessary.

STANDARDISING

The PELLET.TOWER has standardised technology based on many years of operational experience. The product design incorporates optimized and in-service tested components from brand name suppliers.
Its standardised solution reduces the cost for engineering and interface management of TECCON customers and simplifies installation, training, and start-up of the plant. The PELLET.TOWER design generates operational advantages, such as the management of spare and wear-and-tear parts.

AUTHORITY COMPLIANCE

In Europe, the PELLET.TOWER is considered a "single" system, like a single machine, it is not regarded as a plant.
The design meets usual authority requirements such as

- Worker's protection
- Explosion prevention (based on ATEX / VEXAT)
- Fire protection
- Air pollution control
- Noise control
- Waste management

Appropriate certificates for submission to the authorities are standardised and part of the PELLET.TOWER documentation. A Declaration of Conformity, according EC Regulation 2006 / 42 / EG, will be supplied as part of the scope of supply.

CUSTOMER SUPPLY

Each PELLET.TOWER installation requires, apart from the dry wood shavings supply and pellets handling equipment, minimal customer supply. For the PELLET.TOWER itself, only the

- Machine foundations
- Water supply
- Electricity connection, and
- Telecommunication connections for remote maintenance

are required.

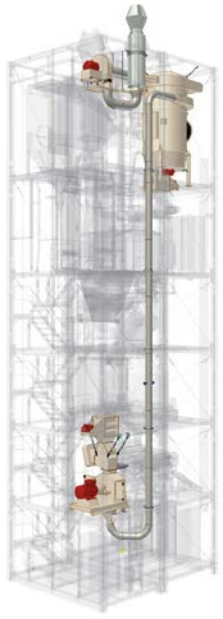
OPERATION

The PELLET.TOWER offers a "Care Free" solution for the pelleting of wood. The operator simply has to provide the system with a steady flow of dry wood shavings in order to receive high quality pellet product. Apart from few standardised maintenance activities, very little attention during its operation is required.
Good maintenance accessibility and advanced features, such as an integrated vacuum cleaning system are examples for additional advantages for the operator of the module.

1

2

3

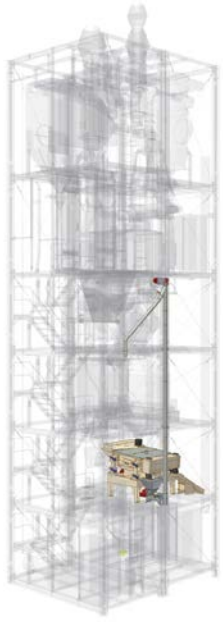


4

5

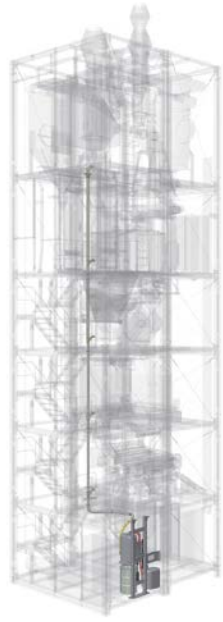
6

7



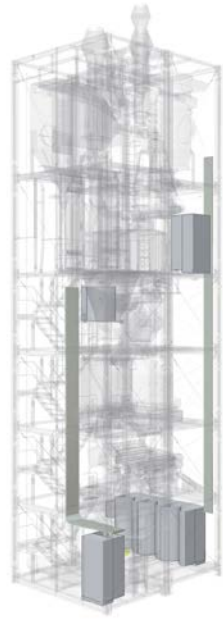
8

9

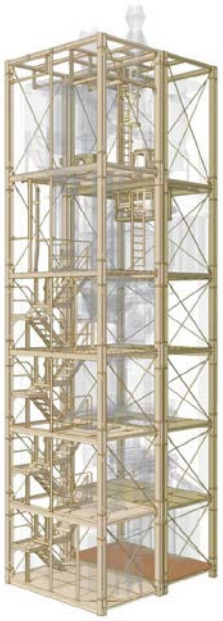


10

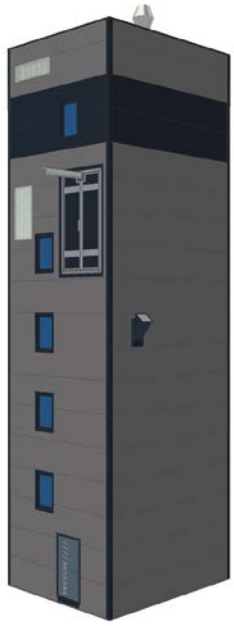
11



12



13



PELLET.TOWER COMPONENTS

1 Raw material intake
2 Binding agent station
3 Hammer mill system
4 Conditioner and conditioning container
5 Pellet mill
6 Pellet cooler and weighing device
7 Screen with fine particle recirculation
8 Air pollution control system
9 Vacuum cleaning system
10 Enhanced ventilation system (only for PT 264 and above), compressed air supply
11 Electrical equipment and C&I system
12 Steelworks
13 Enclosure

Technical Data PT

PELLET PRODUCTION MODULE PT SERIES 2.5 TO 6.0 T / H

RAW MATERIAL						
Raw Material	-	wood sawdust / shavings				
	-	not frozen and free of contamination				
Maximum grit size	mm	10 × 2 × 2 or 3 × 3 × 3				
Water content	$\%_{mass}$	10 to 14				
Bulk weight	kg/m³	130 to 160				

PERFORMANCE DATA						
Type	-	PT 180	PT 220	PT 264	PT 320	PT 370
Capacity (pellets production)	t / h	2.5 – 3.0	3.0 – 3.6	3.6 – 4.3	4.4 – 5.2	5.0 – 6.0
Pellets diameter	mm	6	6	6	6	6
Quality specification	-	property class A1 acc. to EN 14961-2				
Power input – total	kW	app. 310	app. 350	app. 400	app. 485	app. 560
Power input – pellet mill	kW	180	220	264	320	375
Voltage	V	400 / 230	400 / 230	400 / 230	400 / 230	400 / 230
Frequency	Hz	50	50	50	50	50
Water consumption – continuous operation	l / h	10 – 150	10 – 180	10 – 200	10 – 300	10 – 350
Spark extinguishing system (short time)	l / min	max. 225	max. 225	max. 225	max. 225	max. 225
Water supply pressure	bar-g	7.2	7.2	7.2	7.2	7.2
Binding agent	-	ground corn starch				
Binding agent supply	-	FIBC (1 t - Big Bag)				
Binding agent consumption	$\%_{mass}$	max. 2	max. 2	max. 2	max. 2	max. 2
Exhaust air – process	m³ / h	9,600	10,000	11,000	12,000	13,000
Exhaust air – ventilation	m³ / h	option	option	8,500	11,500	13,000
Dust emissions	mg / m³	< 20	< 20	< 20	< 20	< 20

MAIN DIMENSIONS / WEIGHT						
Length	m	5.2	5.2	5.2	5.2	5.2
Width	m	6.2	6.2	6.2	6.2	6.2
Height – roof	m	18.2	18.2	18.2	19.1	19.4
Height – total	m	19.8	19.8	19.8	20.7	21.0
Gross weight	t	app. 72	app. 73	app. 75	app. 80	app. 82

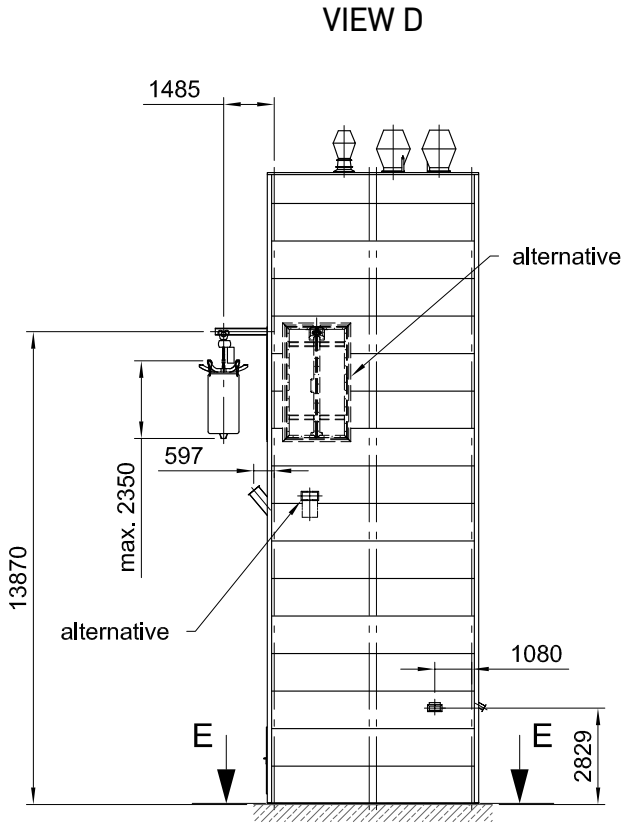
ENCLOSURE						
Design	-	standard enclosure				
Cladding	-	sandwich-panels				
Wall thickness	mm	100	100	100	100	100
Noise emissions (SPL @ 10 m)	dB(A)	app. 67	app. 67	app. 67	app. 67	app. 67

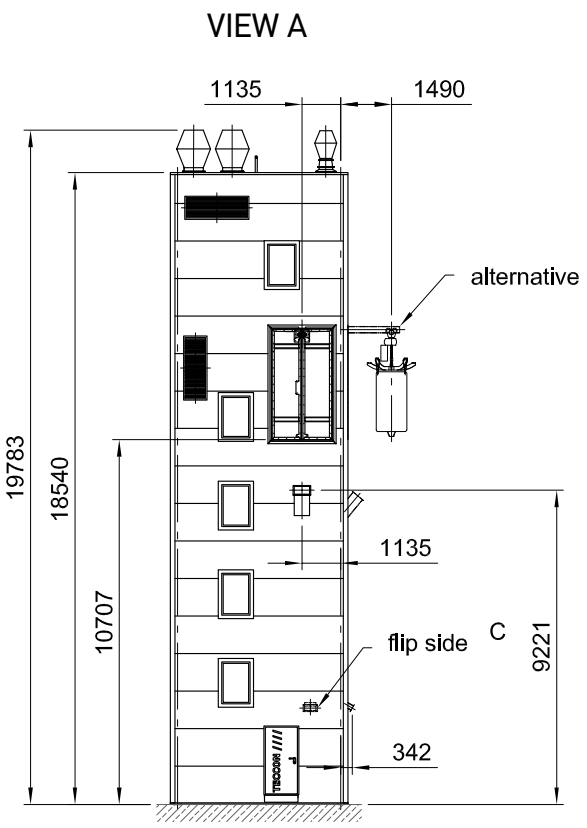
REMARK

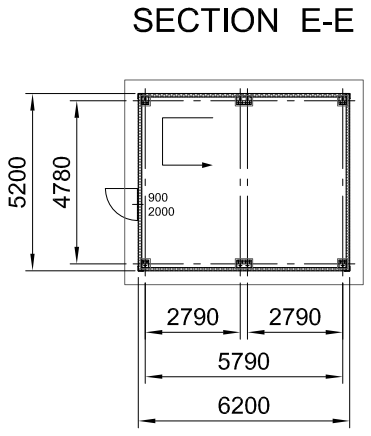
- Data are for preliminary information only
- Performance data are based on spruce / fir wood and vary with other wood types
- Northern American applications will be equipped according to local electricity supply requirements (optional extra)

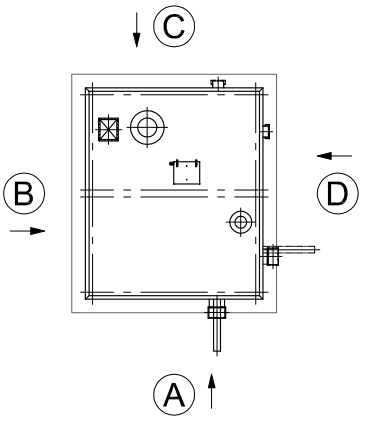
Dimension Sheet PT

PELLET PRODUCTION MODULE PT SERIES 2.5 TO 6.0 T / H







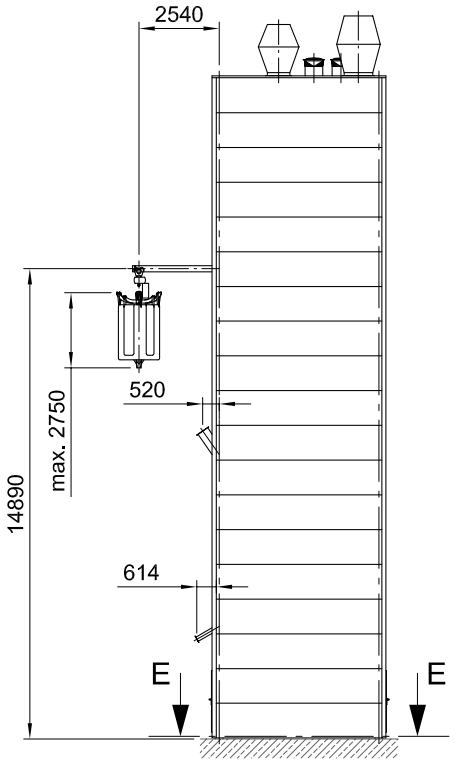


PELLET.TOWER Dimension Sheet
Subject to technical changes.

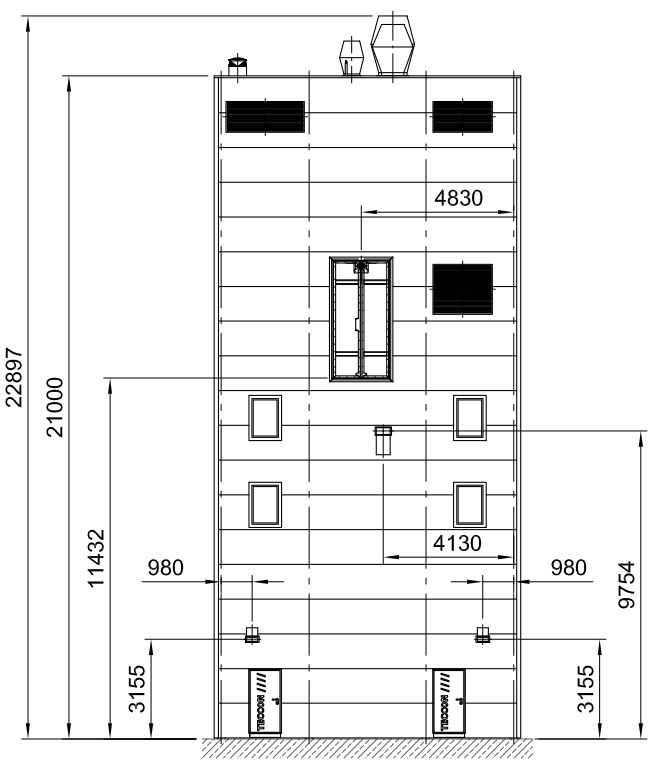
Dimension Sheet P2T

PELLET PRODUCTION MODULE P2T SERIES 6.0 TO 10.0 T / H

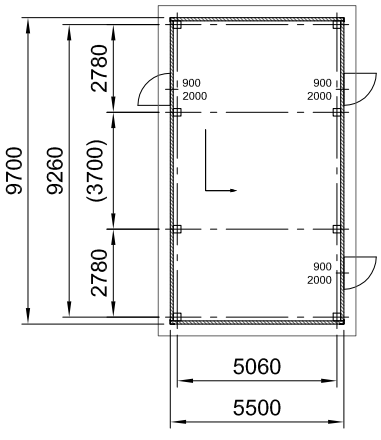
VIEW D

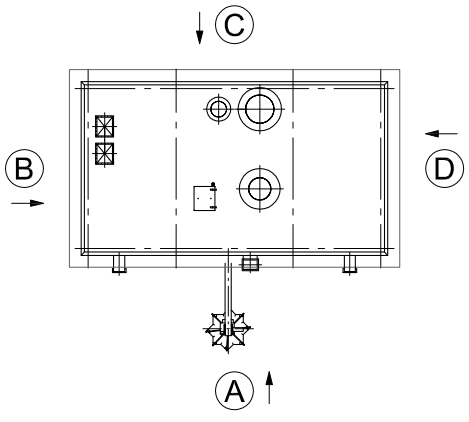


VIEW A



SECTION E-E

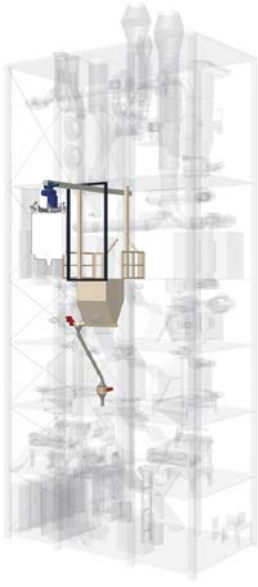




PELLET.TOWER P2T Dimension Sheet
Subject to technical changes.

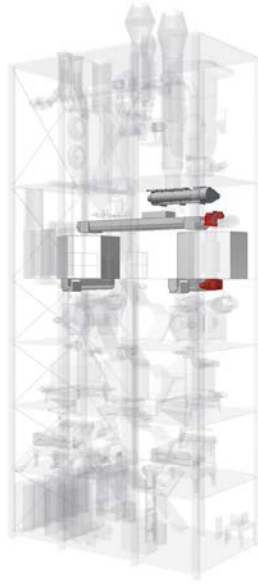
1

2

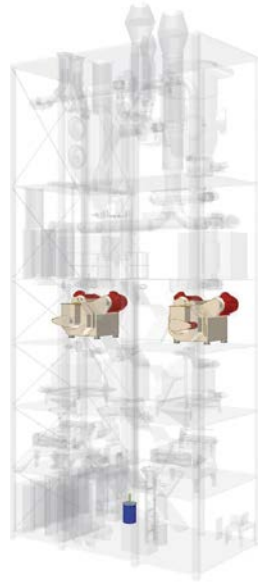


3

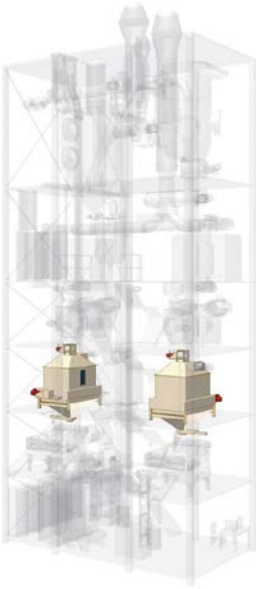
4



5



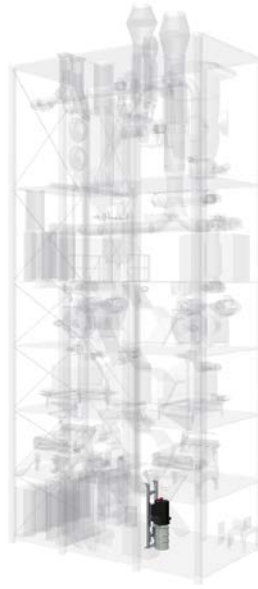
6



7

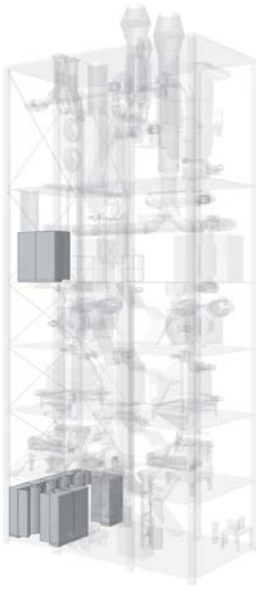
8

9



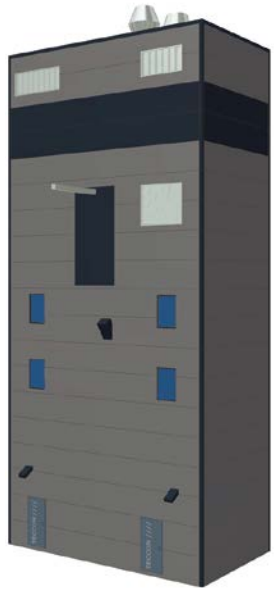
10

11



12

13



PELLET.TOWER COMPONENTS

1 Raw material intake
2 Binding agent station
3 Hammer mill system
4 Conditioner and conditioning container
5 Pellet mill
6 Pellet cooler and weighing device
7 Screen with fine particle recirculation
8 Air pollution control system
9 Vacuum cleaning system
10 Enhanced ventilation system, compressed air supply
11 Electrical equipment and C&I system
12 Steelworks
13 Enclosure

Technical Data P2T

PELLET PRODUCTION MODULE P2T SERIES 6.0 TO 10.0 T / H

RAW MATERIAL				
Raw Material	-	wood sawdust / shavings		
	-	not frozen and free of contamination		
Maximum grit size	mm	10 × 2 × 2 oder 3 × 3 × 3		
Water content	$\%_{mass}$	10 to 14		
Bulk weight	kg/m³	130 to 160		

PERFORMANCE DATA				
Type	-	P2T 440	P2T 528	P2T 640
Capacity (pellets production)	t / h	6.0 – 7.0	7.0 – 8.5	8.5 – 10.0
Pellets diameter	mm	6	6	6
Quality specification	-	property class A1 acc. to EN 14961-2		
Power input – total	kW	app. 705	app. 810	app. 950
Power input – pellet mill	kW	2 × 220	2 × 264	2 × 320
Voltage	V	400 / 230	400 / 230	400 / 230
Frequency	Hz	50	50	50
Water consumption – continuous operation	l / h	20 – 360	20 – 500	20 – 600
Spark extinguishing system (short time)	l / min	max. 430	max. 430	max. 430
Water supply pressure	bar-g	7.5	7.5	7.5
Binding agent	-	ground corn starch		
Binding agent supply	-	FIBC (1 t - Big Bag)		
Binding agent consumption	$\%_{mass}$	max. 2	max. 2	max. 2
Exhaust air – process	m³ / h	app. 18,000	app. 19,000	app. 22,000
Exhaust air – ventilation	m³ / h	app. 12,000	app. 17,000	app. 22,000
Dust emissions	mg / m³	< 20	< 20	< 20

MAIN DIMENSIONS / WEIGHT				
Length	m	9.7	9.7	9.7
Width	m	5.5	5.5	5.5
Height – roof	m	21.0	21.0	21.0
Height – total	m	22.9	22.9	22.9
Gross weight	t	app. 142	app. 145	app. 150

ENCLOSURE				
Design	-	standard enclosure		
Cladding	-	sandwich-panels		
Wall thickness	mm	100	100	100
Noise emissions (SPL @ 10 m)	dB (A)	app. 67	app. 67	app. 67

REMARK

- Data are for preliminary information only
- Performance data are based on spruce / fir wood and vary with other wood types
- Northern American applications will be equipped according to local electricity supply requirements (optional extra)

1

Scope of Supply

Patented state of the art pelleting module for the production of high quality wood pellets from dried sawdust and/or wood shavings includes

RAW MATERIAL – INTAKE

- Feeding bin for raw material with rotary distribution arm
- Level control
- Dosing screw conveyor

BINDING AGENT – INTAKE

- Lifting device with remote control
- Binding agent container
- Dosing screw conveyor
- Pneumatically operated exterior loading door
- Safety fence

HAMMER MILL SYSTEM

- Rotary gate valves
- Magnetic separator and stone trap
- Hammer mill
- Pipework for pneumatic conveying
- Fabric filter with explosion protection valve
- Pneumatic filter cleaning system
- Radial blower fan
- Exhaust air ductwork with air flow control valve
- Sound damper & absorber
- Rain/weather cap

CONDITIONER

- Water distribution piping with flow control system
- Conditioner
- In-line moisture measurement system
- Conditioning container with rotary distribution arm
- Level control – analog
- Discharge screw conveyor
- Gravity feeding duct/chute with permanent magnet

PELLET MILL

- Pellet mill with ring die and 3-roller system
- Motors with belt drive
- Temperature sensor
- Vibration detector
- Slip clutch (mechanical overload protection system)
- Feed spout with gear drive
- Vibration damper
- Misc. safety devices
- Central grease lubrication system (200 l barrel @ level 0)
- Maintenance tool kit

PELLET COOLER

- Rotary gate valve
- Counter flow/fluidised bed cooler
- Discharge screen
- Temperature monitoring
- Pneumatically actuated fire damper
- Fire extinguishing unit

IN LINE WEIGHING SYSTEM

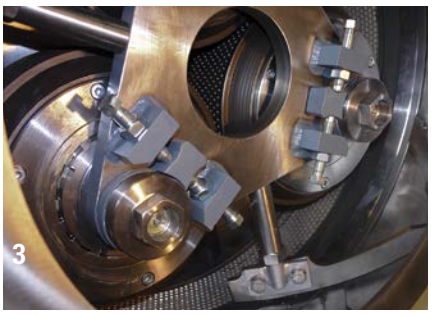
- Discharge bin/weighing container
- Slide gate (pneumatic operation)
- Connecting expansion joint

PELLET SCREEN

- Oscillating screen with cover
- Connecting expansion joints
- Collecting hopper with level switch
- Vertical screw conveyor – fine particles feed back

CENTRAL DUST REMOVAL SYSTEM

- Ductwork – cooling and dust Removal
- Air flow control dampers
- Pocket type fabric filter with explosion protection valve
- Pulse filter cleaning system
- Rotary gate valve
- Radial fan



1 Hammer mill
2 Pellet mill
3 Rollers and die (pellet mill)
4 Screen with fine particle recirculation
5 Pellet cooler

- Sound damper & absorber
- Clean air ductwork with rain/weather cap

VACCUUM CLEANING SYSTEM

- Pipework with connecting hubs on each level
- Vacuum cleaner with explosion protection
- Dust container on level 0
- Pneumatic lifting device

PRESSURISED AIR SUPPLY

- Screw type air compressor with air dryer and filter unit
- Compressed air reservoir tank
- Compressed air distribution system

ENHANCED VENTILATION SYSTEM

included for PELLET.TOWER 264 to 370, otherwise optional feature

- Ductwork with intake sound damper & absorber
- Air flow control dampers
- Axial fan
- Exhaust air sound damper & absorber
- Exhaus air duct with rain/weather cap
- Room temperature monitoring

FIRE AND EXPLOSION PREVENTION

- Fire alarm system
- Spark extinguishing system for hammer mill system
- Spark extinguishing system for dust removal system
- Automated fire extinguishing system for pellet cooler
- Water distribution system with pressure monitoring
- Optical smoke detectors

ELECTRICAL EQUIPMENT / C & I

- Control system
- Operation and monitoring system with desktop PC
- Main distribution cabinet
- Control cabinets
- Low voltage network
- Lighting including emergency lighting
- Warning and alarm system (optical/acoustic)

ENCLOSURE/INFRASTRUCTURE

- Supporting steelworks
- Cladding windows and doors
- Platforms, stairways and ladders
- Emergency rescue system
- Portable fire extinguisher
- Warning & safety labels and information signs
- Water distribution system

LIMITS OF SUPPLY

RAW MATERIAL
Inlet flange PELLET.TOWER
WOOD PELLETS
Outlet flange PELLET.TOWER
CIVIL WORKS
Upper edge of concrete slab
ELECTRIC POWER
Feeder clamp main distribution cabinet
C & I
Feeder clamp control cabinet
POTABLE WATER
Connecting flange on the cladding of the equipment
TELECOMMUNICATION
Feeder clamp control cabinet
POTABLE WATER
Connecting flange in the foundation plate of the equipment
OTHERS
To be mutually agreed

PELLET. TOWER outside view

Projected pellet plant with two PELLET. TOWER units

The design and supply of plants for the conversion of woody biomass into pellets is a focus of TECCON's activities. Supported by modern CAE systems, the plant concept is developed in short time.

The graphic representation of a pellet plant makes it easy to fine-tune the design with the future operator.
With TECCON's patented PELLET. TOWER technology, systems of high efficiency and cost effectiveness are being created.

High-end solutions in wood pelleting

The long-term operation of an own pellet plant and the implementation of multiple client projects represent the foundation of TECCON's wood pellet production success story. The PELLET.TOWER creates customer advantages in many ways:

OPTIMISED TECHNOLOGY

- Excellent production figures
- Advanced, field proven solutions
- First-class components
- High plant safety standards
- Sophisticated explosion protection concept
- Improved conveyor technology by tower design
- Vacuum cleaning system for easy cleaning of the plant
- Fully automatic plant operation with option of remote maintenance
- High operating and maintenance convenience

SIMPLE IMPLEMENTATION

- Simplified engineering and project management
- Benefits in the approval process
- Space saving design
- No special building required
- Short installation and commissioning periods
- Modular plant extension possible

SAFE INVESTMENT

- Attractive price-performance ratio
- Partial redundancy with multiple modules
- High plant availability
- Premium leasing suitability
- Flexible tax depreciation as a machine
- First-class references

Die of pellet mill

Pellet plant including PELLET.TOWER (left), raw material intake (right), and pellet silo (back)

TECCON KONSTRUKTIONEN GMBH
Katschbergstrasse 78 – 80
9851 Lieserbrücke, Austria
Phone: +43 4762-4820
Fax: +43 4762-4820 29
office@teccon.at

www.teccon.at