

CLIENT

Brande, 2-12-2011

QUOTATION

Dear Sirs,

We thank you for your kind inquiry and are happy to forward enclosed our documentation and quotation for a **complete secondhand IWT T20 pressure impregnation plant**. Year of manufacture: 1999.

Time of delivery: 4 - 6 months from receipt of order
Terms of delivery: Ex works, WTT A/S, DK-7330 Brande
Shipment by: Special transport
Terms of payment: 100% bank guarantee at time of order,
90% at time of shipment,
10% after commissioning, but not later than 14 days after delivery.

W½e look forward to hearing from you.

Best regards,
WTT A/S


Erik Skoymand

Wood Treatment Technology

COMPLETE WTT T20 - VACUUM/PRESSURE IMPREGNATION PLANT

Nominal and actual capacities :

Nominal annual capacity:	18.000 m ³
- with	250 working days
- based on	18 m ³ of wood per charge.
-with	4 charges per day

Maximum stack dimensions:

Width:	1.200 mm
Height:	1.200 mm
Max. length:	18.000 mm

Energy consumption:

Electricity connection:	36 kW as 3 x 380 volt, 50 Hz, + 0 + earth
Average electricity consumption	15 kW/h
Average water consumption:	300 litres of water per m ³ wood

The plant is supplied as two units, which is operational after being placed in a concrete foundation and connected to an energy source and water.

AUTOCLAVE UNIT :

Autoclave: Cylindrical autoclave placed next to the storage tank section.

Diameter:	1.800 mm (external)
Length:	18.000 mm (internal)
Volume:	46.250 litres of liquid
Material:	13 mm HII steel plate according to DIN 17155.
Working pressure:	0 to 15 bars (abs.)

Internal rails and anti-float holder for the impregnation trolleys.

Door: 1 IWT hydraulic fully automatic quick-locking door, complete with 1 hydraulic pump and hydraulic equipment. Powered by a 1,1 kW electric motor.

Storage tank for the wood preservative - incl. pipes and valves as well as pump room and control room with space for the control unit for the plant. Placed next to the plant.

Length: 10.000 mm
Width: 3.000 mm
Height: 3.000 mm

The storage tank section consists of a storage tank and a working tank.

Total storage volume: 63.000 litres impregnation liquid
Working tank volume: 7.500 litres impregnations liquid
Material: 8 mm steel plate

Length: 7.000 mm
Width: 3.000 mm
Height: 3.000 mm

The storage tank is equipped with 1 man hole Ø600 mm for inspection and cleaning. Equipped with a level indicator for indication of the and min/max filling indication.

Pump room:

The pump room contains all pumps, valves and pipes as well as complete electrical installation, incl. lighting in the room. The electric cupboard is placed at the external side of the pump room.

Length: 3.000 mm
Width: 3.000 mm
Height: 3.000 mm

Pumps:

- 1 Water cooled vacuum pump to establish and maintain a vacuum of up to 0.05 bar (95% vacuum). Powered by a 22.0 kW electric motor.
- 1 Pressure pump with a capacity of 11 m³ with 11 bar (abs.) to establish and maintain a working pressure of up to 15 bar (abs.). Powered by a 5.5 kW electric motor
- 1 Circulation pump for cooling of the vacuum pump with water to attain higher vacuum and longer life-time for the pump. Powered by a 0.37kW electric motor

Filter equipment:

- 1 Self-cleaning filter in the separation between the storage tank and the working tank.
- 1 Filter in the autoclave.
- 1 Filter in the pressure circuit.

Pipes and valves:

- 1 Complete pipe work containing the following:
 - a pressure circuit, diameter 50 mm
 - a vacuum circuit, diameter 50 mm
 - two emptying and filling pipes, diameter 125 mm
- 1 Mechanical pressure regulation valve.
- 1 Electrical safety valve.
- 1 Vacuum tank with float switch for switching over from the filling to the pressure phase
- 1 Cooling water tank for the vacuum pump. Volume: 1500 litres.
Placed in the pump room and equipped with a cooling coil in the storage tank.

IWT Computer control type 600.

Fully automatic operation of the plant in accordance with the Nordic and a number of foreign standards. Hardware equipment consisting of 1 IBM PC as well as 1 A4 printer for printing out the treatment protocols when each process has been completed.

Hardware incl. disk station, harddisk, and colour monitor, impregnation according to NTR and a number of foreign standards.

Control parameters:

- a) initial vacuum value as condition for the initial vacuum time.
- b) pressure value as condition for the pressure time.
- c) final vacuum value as condition for the final vacuum time.
- d) times for:
 - initial vacuum
 - pressure phase
 - holding phase between filling and emptying
 - emptying
 - final vacuum
 - air equalization
 - final emptying
- e) impregnation to the desired absorption in kg. average per m³
- f) impregnation to the saturation point of the wood

Screen pictures with indication of:

- 1) process parameters, among other things:
 - vacuum
 - pressure
 - nominal and actual time for each process phase
 - litre content in the storage tank
 - retention of wood preservative during the pressure phase
 - retention of wood preservative for the last 15 minutes
 - temperature in the autoclave
 - concentration of the wood preservative (as entered value)
 - time and date indication
 - calculated finish time for the process
- 2) Fault indication
- 3) 10 fixed programmes defined by the customer
- 4) Technical data
- 5) Customers data with indication of among other things :
 - customers name
 - process number
 - wood volume (entered value)
 - wood humidity (entered value)
- 6) wood volume calculation based on entered values for thickness, width and length

Printing of the process protocol with a selection of the above mentioned registrations and entered values.

Complete with:

1 Vacuum meter

1 Pressure manometer

1 Main switch

Motor relays to prevent overloading for all electrical motors.

1 Complete valve equipment with pneumatically controlled automatic valves.

1 Compressor for operation of the valves. Powered by a 1.1 kW electric motor.

7 **Impregnation trolleys** for wood stacks up to 1.20 m x 1.20 m.

1 **Hydraulic swing of the autoclave door**, incl. control system

1 **Automatic extraction of the trolleys** with wire winch with wireless distant regulation.

1 **Valve, in brass-free material** for impregnation with AB impregnation concentrate

1 **Rail bridge** to connect the external and the internal rails in the autoclave

1 **Hydraulic tilt system of the autoclave.** with hydraulic equipment incl. 2 hydraulic cylinders, hydraulic pump equipment and control of the tipping of the autoclave with 8 cm per running metre to improve dripping of the impregnation preservative in the autoclave during the final vacuum phase. 1 hydraulic pump, powered by a 4,0 kW electric motor.

2 **Automatic mixing system** for mixing of chemical directly to the storage tank with the wanted amount for each mixing and thus the solution concentration to be used. Complete with pneumatic ball valve, litre counter, dosatron 8 m³/hour and safety switch

1 **Extra storage tank** making it possible for the plant to operate with 2 types or concentrations of wood preservatives. The storage tank is divided into a storage section and a working tank section. Complete with tubes and valves.

Total storage volume: 63.000 litres

Mixing tank volume: 7.500 litres

Material: 8 mm steel plate

1 **Central suction** from the autoclave, consisting of a DN200 flange connecting piece and with automatic valve with feedback to the computer in order to ensure that the valve is closed during the actual impregnation process. Incl. ventilator that sends the air to the storage tank and further from here through a chimney above the roof

2 **Heating pipes** in the storage tank for maintaining a temperature of 15-20 degrees on the impregnation liquid. Incl. thermostat and valve.

Prices/terms of delivery/time of delivery/additional

WTT T20 impregnation plant according to the WTT terms of delivery and payment, Orgalime S2000 and the above-mentioned technical description.

TOTAL PRICE EURO 115.000,00

Installation/start-up in 10 days of each 12 hours	EURO	7.560,00
Transport for the technician, to the site incl. travelling time	EURO	2.100,00
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Total price, ex works, installed and taken into operation	EURO	124.660,00

Price:

Incl. operation and maintenance manual

Incl. test running at our works in Denmark

Incl. drawing of the concrete foundation and the external rails which are constructed by the customer

Incl. training in operation and maintenance of the plant at our works for a period of up to 3 days

A 12-month guarantee from the moment the plant is ready for shipment

* ex works DK-7330 Brande

* excl. cost of custom clearance

* excl. board and lodging costs for WTT technician(s) in connection with delivery, commissioning and instructions at the buyer's site

* excl. unloading and placement of the plant on the concrete foundation by means of a crane

Work at site:

Unloading and placement of the plant on the concrete foundation

Foundation

Connection of electricity, water and heating

Rails outside the autoclave