

Brush Coil Cleaner

DTBC 2200

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1. GENERAL DESCRIPTION

The scope of supply for this quotation consists in the detailed design, procurement, fabrication and assembly of auxiliary elements related to the below description of material and in-house testing.

The machine is suitable for the installation on a blanking line.

The proposal is composed from:

Brush Cleaner for the coil

While running through the cleaner, the coil is cleaned on both sides by linear brushes. The dirt is stripped out from the brushes transported into a filter by suction system. These results are possible thanks to:

- mechanical brush effect by the linear brush
- capillary adhesive forces between micro- moistened filament and particle
- reduction of electrostatic charges brought about by the DTBR_300liquid.

1.1. CUSTOMER TECHNICAL DATA

Type of materials	Steel, Aluminum
Thickness	0,3 – 3,2 mm
Max Thickness delta	2 mm
Material width (left to right)	Min 300 - max 2200 mm
Material shape	Coil
Working speed	Max 90 m/min
Total installed power supply brush cleaner	8 kW
Electrical equipment	440V, 60 Hz, 3 phases, N, PE (different voltage available)
Safety interface	To be defined
Labelling	Standard Dietronic
Application	Coil

1.2 MACHINES TECHNICAL DATA

Coil cleaner power consumption	10 Kw
Control voltage	24 V DC
Brush cleaner air consumption	1200 NI/min at 6 bar
Air Supply	5 bar min
Communication with a line	Profinet

2. MAIN HOUSING

Frame

The machine's substructure is a solid and waterproof welded steel construction.

Interface points with a press line

The electrics and pneumatics connections pass along the machine side in a cable chain and can be plugged at separate connection box. At these connection box the machine must be connected from the customer side (air supply, power supply, cables interface – Dietronic will provide a document for details).

Cable and Pipe Channels

All channels to connect the connection box to the HMI and the connection box to the pump station and the connection box with electrical cabinet must be provided from a customer (Dietronic will provide a document for details).

All cables and pipe from Dietronic side are scope of supply.

Electrical control

The machine operating panel is placed separately according to the line layout.

The control cabinets will be placed separately according to the line layout.

The control is equipped with Siemens PLC 1500 series and portable mobile panel HMI

Software

The software is provided in protected mode (only reading mode, not writing mode) until warranty expiration. The default language is English.

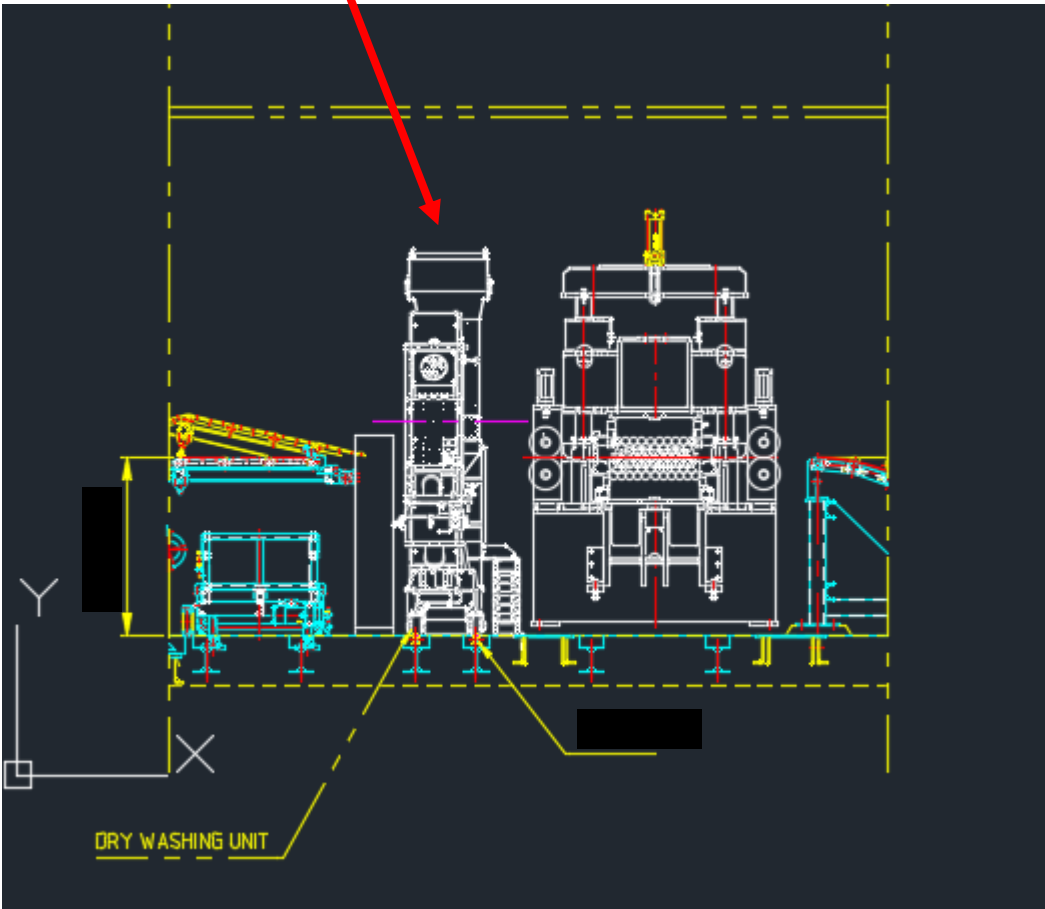
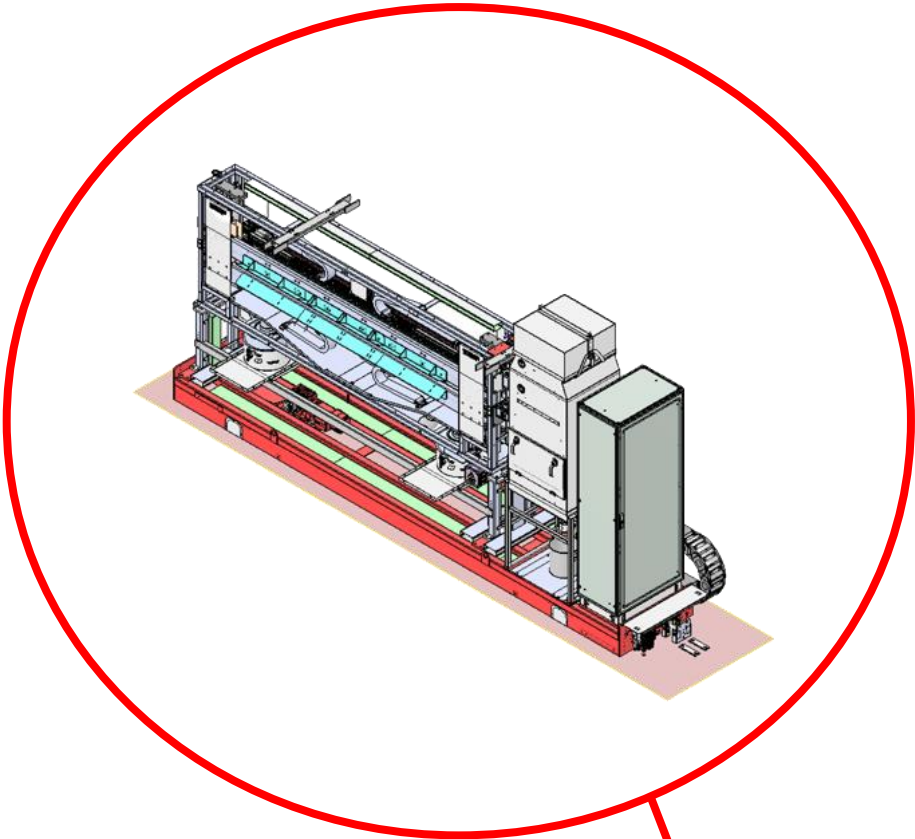
Electrics & Control

The communication is Profinet

The control cabinet can be placed separately to the structure of the machine.

The machine operating panel is placed separately according to the line.

3. GENERAL DESCRIPTION COIL BRUSH CLEANER



The linear brush wipes transversally across the product surface. Particles will cling to the micro-moistened filaments which will thus remove them effectively and transport them to the suction connection.

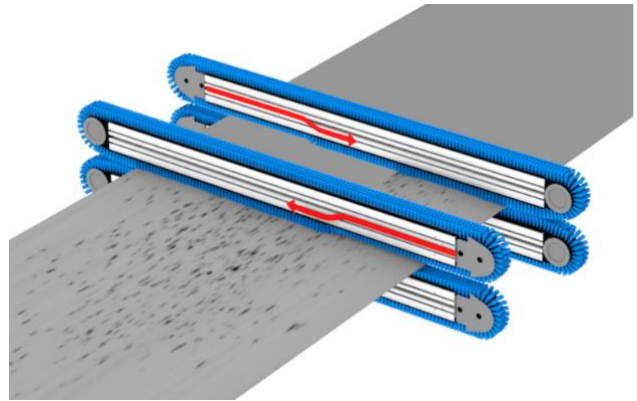
These results are possible thanks to:

- mechanical brush effect by the linear brush
- capillary adhesive forces between micro-moistened filament and particle
- reduction of electrostatic charges brought about by the DTBR_300 liquid.

Linear Brushes

Two Sword Brushes for side of material, wipe transversally across the material surfaces. The micro-moistened brush filaments (Antistatic Liquid system) remove even the most minute particles from the subject surface. The integrated pressure buffer provides for a constant wiping pressure and a premium cleaning result. The adjustment frame VE 25. allows a vertical adjustment of the Sword Brushes e.g. to adapt them to the material's thickness or to remove them from the material surface for maintenance purposes.

To protect the filaments and prolong the industrial life of the brushes, the linear brushes are lifted slightly at the edge of the strip and will touch the surface only after having just passed the material's edge. The brushes at the inlet and outlet of the machine wipe in opposite directions, thus guaranteeing that the entire product surface is cleaned effectively.



Pneumatic Height Adjustment

The cleaning module may be mounted on an adjustment frame to integrate a height adjustment:

1. Manual adjustment via crank (HVM)
2. Pneumatic adjustment via pneumatic cylinder (HVP).

Quick removal of module from material surface, e.g. in crash situations. The mechanical and the electrical height adjustment may be combined with the pneumatic adjustment.

The brushes are supported by pneumatic pistons for fast opening.

A safety device on the machine protects the brushes during the feeding of the coil by a fingers activated from pneumatic pistons. The upper brush can be open for 200 mm and the lower for 100 mm.

Self-Cleaning of the Brushes

At the deviation, the linear brushes widen, so that particles may be detached more easily. Rotating steel elements (racks) remove the particles mechanically from the filaments. Additionally, there are compressed air driven nozzles, that blow into the brush filaments to cancel the capillary adhesive forces between the particles and the filaments. The suction system will absorb the particles.

Benefit: Improved self-cleaning and automatic cleaning process

The patented Antistatic liquid system permits effective removal of even very fine particles.

DTBR_300 Cleaning Liquid Applicator

DTBR_300 is an antistatic cleaning agent. The brush filaments are micro-moistened with DTBR_300, thus providing an effective removal of even very fine dust particles

1. Micro-moistened brush filament with antistatic liquid
2. DTBR_300 sprayer SQL 51.
3. Distributor block VTB 100.
4. DTBR_300 regulator and filter unit IR 100. DTBR_300 filter, dosage and display of inner pressure of pressure buffer
5. DTBR_300 central supply pump, e.g. IS 102

The DTBR_300 liquid is supplied by a pneumatic from on frame tank of 20 lt tank with electric filling level control as well as pump and connections for refilling the reservoir.

Automatic refilling unit for the DTBR_300 tank from barrel or IBC Container 1000 lt.

The unit is provided with level sensor switch displayed on the HMI of the machine.

Calibrated nozzles control the amount of liquid applied on the single brush.

The consumption of the DTBR_300 is estimate in about 2L for hour

BRUSHES SPECIFICATION	
NUMBER OF BRUSHES	4: 2 above, 2 below
FILAMENTS	black filaments in polyamide, length of filaments 17mm, diameter 0,2 mm
SUCTION FILTER	DUSTOMAT 4-10
BRUSH CLEANLESS LEVEL	< 0,5 mm particle size
DTBR_300 RESERVOIR	50 litres
UPPER BRUSH HEIGHT ADJUSTMENT	manual positioning of the upper brush
SAFETY BRUSH DEVICE	laser sensor for anti coil collision control for upper and lower brush (Dietronic will provide sensor and support, THE CUSTOMER will install on the infeed conveyor)

Test n°	Speed	Spot n°	Cleaning Result
1	100m/min	1	88,89%
		2	34,20%
2	100 m/min	1	98,28
		2	99,57%
3	150 m/min	1	82,82
		2	97,6
		3	97,26
		4	97,26
		5	23,37
		6	75,95



Cleaning performance 98% of particulars removal below 50 micro is required.

We can only confirm this requirement, when certain basic surface conditions are defined.

The cleaning results also can be influenced from initial conditions of the material.

4. GENERAL SPECIFICATIONS NAD CONDITIONS INCLUDED IN THE QUOTE

Certification:	QUASI MACHINE 2006/42/CE Machine Directive
Labelling:	DIETRONIC Standard
Electrical schemes and drawings:	PDF
Notes:	The software will be provided with comments only in English language. Until warranty expiration it will be provided only in readable version. Intellectual proprieties key-blocks of the program will be protected under password.
Cables Standard Length	Cable length between EC and connection box 50 m Cable length between connection box and HMI 15 m Cable length between connection box and pump station TBD
Colour:	Dietronic Standard Machine frame RAL 2004 Electrical Cabinet RAL 7035

Integration exclusion:

- Downloading from truck
- Positioning on existing rail of the machine. DieTronic is not responsible about rails condition and alignment
- Re-assembling of parts dismounted for transportation (DieTronic supervision included)
- All the activities that require to fix on the concrete
 - Referred for sensor IN/OUT of the machine from the line
 - Cable chain
 - Connection box
- Communication devices and cable for software interface between our machine and the line including cable channels
- Software integration to the line
- Positioning of IBS or Barrel holder
- Channels and installation for flexible pipes to connect the Antistatic liquid from the IBC or Barrel holder to the connection box (flexible pipes included)
- Channels and installation for cables to connect the machine from connection box to the HMI pulpit (cables included)
- Installation and bracket of crash sensor
 - Cable for the sensor
 - Interface between the crash signal from the line to our machine
- Power supply and cable from the line to the connection box
- Piping for air supply from line to the connection box

Warranty Conditions:

The Warranty goes into effect after maximum 60 days from when the new Dietronic unit has been delivered to the customer premises and expires at the end of the Warranty Period specified above.

The Warranty covers repairs to correct any unit defects related to materials or workmanship existing at the time of purchase. All requests must be approved by Dietronic prior to any work being performed during the Warranty Period. Specific exceptions to the Warranty are listed in the Exclusions section.

Dietronic will provide repairs to the unit during the Warranty Period in accordance with the Terms, Limitations, and Conditions. This is the sole Warranty provided by Dietronic.

Exclusions

Unit components subject to normal wear during the Warranty Period are not covered by Warranty and include the following items:

1. Filters (Oil tank, Antistatic liquid tank, brush cleaner and reoiler suction systems filters)
2. Brushes

Component failure caused by customer misuse/abuse of the unit (e.g. incorrect modification of machine parameters that cause damages or the usage of incompatible materials), voids the Warranty.

Machine rupture caused by part handling/misuse or damages due to exposure to elements or incorrect storage of the equipment, voids the Warranty.

Standard Equipment Warranty Coverage

All unit components are warranted for 1-Year, except the items listed in the Exclusions section.

Dietronic will supply new or remanufactured component of equal or better quality to replace the failed component. It is the sole discretion of Dietronic to determine best method of replacement. The replaced component will be covered for the remainder of the Warranty Period or 90 days, whichever is longer.

Commissioning Conditions:

Date after agreement with MrS. Elisa Beccaria (service@dietronic.eu)

The following preconditions need to be met for a successful commissioning:

- 1) The Machine has to be mounted and aligned
- 2) The electrical, pneumatic and liquid connections must have been installed
- 3) Electricity and compressed air should be available according to Dietronic specification
- 4) Free access to 230 V.
- 5) Customer must provide necessary safety training and access cards
- 6) Customer must guarantee working time without interruptions for Dietronic technicians
- 7) Commissioning will take place only once in Customer Plant
- 8) Working time 7 am to 5 pm, if technicians need to work extra hours we will charge surpluses for night shifts or work during the weekends.

Scope of commissioning:

- 1) Functional control of the installation
- 2) Initial start-up of the system

Not included in the above price are the following items:

- 1) All sorts of mounting and installations works
- 2) Correcting mounting errors or deviations from Dietronic specifications

All waiting periods that go back to external factors or to non-compliance with the preconditions for a successful commissioning will be invoiced according to the Dietronic price-list for technicians. An authorised person of the customer will have to confirm that the above services have been rendered directly after the end of the commissioning.

This must be done on the Dietronic form "confirmation commissioning". This confirmation ends the commissioning, the risk for running the machine will pass on to the customer.

A separate trip of the technicians to receive the customer's or end-customer's final acceptance is not included in this quotation/ order confirmation.

All additional services or items, that are not included in this quotation/ order confirmation will be charged according to the Dietronic price-list for technicians.