**Brush Coil Cleaner**

**DTBC 2200**

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# **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

Single Brushes modules for a cleaning of blank on the stacker

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 |
| 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 |

# **MACHINES TECHNICAL DATA**

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

# **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 must be connected from the customer side (air supply, power supply, cables interface – Dietronic will provide a document for details).

**Motorized transport and locking**

The machine is equipped with a transportation mechanism on rails.

The wheelsets are guided by a guiding rail. With the help of a pole-changing braking gear motor the whole line can be moved into the line or out of the line.

There are two safety sensors at the entrance and at the exit that stop the machine inside or outside in the final position, the machine can be automatically fastened at the floor.

Motorized movement of the machines in and out of the line (SAFETY ENVIROMENTAL AREA MUST BE PROVIDED FROM THE BUYER)

The electrics and pneumatics connections pass along the machine side in a cable chain and can be plugged at both sides. A manufacturing drawing for the rails is included in our quotation. **The supply and installation of the rails is not included** in our scope of supply. In parking position, selected machine functions can be executed.

**Cable and Pipe Channels**

All channels to connect the connection boxes to the HMI and the connection boxes to the refilling units must be provided from a customer (Dietronic will provide a document for details) as well as the channel to connect the connection box.

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. (cables 50 m length max)

The control is equipped by Siemens 1500 series.  
All the motors are SEW   
Armor Block Remote I/O Murr

**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 from the machine.

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

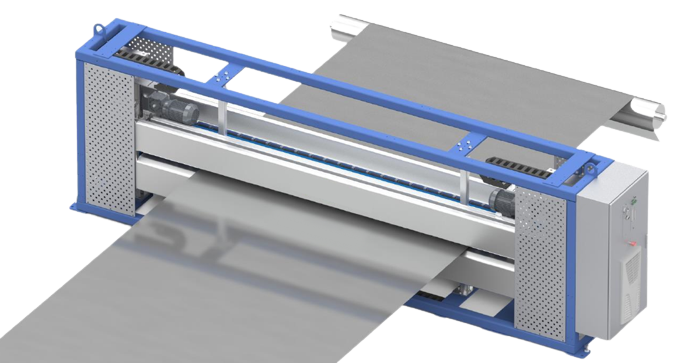
The control is equipped by Siemens 1500 series, Point I/O and Safety I/O, which is placed in the control cabinet with air conditioning unit.

All the motors are SEW drive.

Armor Block Remote I/O Murr

Additional Siemens Mobile Panel for operating maintenance functions and displacement drive.

# **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, 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.

**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 before on the entrance of the machine is connected to the signal to open fast the brushes. The upper brush can be open for 200 mm and the lower for 100 mm.(the installation of the safety crash sensor is not included)

**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 com-pressed air driven nozzles, that blow into the brush filaments to cancel the capillary adhesive forces be-tween the particles and the filaments. The suction system will absorb the particles.

Benefit: Improved self-cleaning and automatic cleaning process

**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** | 8: 2 above, 2 below |
| **FILAMENTS** | black filaments in polyamide, length of filaments 17mm, diameter 0,2 mm |
| **SUCTION FILTER** | DUSTOMAT 4-10 |
| **BRUSH CLEANILESS LEVEL** | < 0,5 mm particle size |
| **DTBR\_300 RESERVOIR** | 50 litres |
| **UPPER BRUSH HEIGHT ADJUSTMENT** | manual positioning of the upper brush |
| **SAFEY 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) |

Immagine che contiene tavolo

Descrizione generata automaticamente

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.

# **GENERAL SPECIFICATIONS 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. |
| **Colour:** | Dietronic Standard  Machine frame RAL 2004  Electrical Cabinet RAL 7035 |
| **Cables Standard Length** | Cable length between EC and connection box 50 m  Cable length between connection box and HMI must be defined |

|  |  |
| --- | --- |
| **Electrical BOM Part List** |  |
| PLC | Siemens |
| HMI | Siemens |
| DC Power Supply | Siemens |
| Cabinet Carpentery | Rittal |
| Protection | Siemens |
| Plugs | Harting |
| Sensors | Ifm / Electrotech / Turck |
| Encoder | Leine Linde |
| Motor | SEW |
| Armor block I/O | Murr |
| **Pneumatic BOM Part List** | SMC |

**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 (Antistatic liquid tank and 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.