

- Coating units
- Blasting units
- Heavy-duty transport technology
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- Job blasting and preservation



Pos. 1.0 1 Open-space painting system with long-range nozzles

| Technical Data of the Open-space painting system | | |
|---|---|------------------------------|
| Inside dimensions approx. | Length (3 x 15.000mm) | 45.000 mm |
| | Width | 6.000 mm |
| | Height between working level and lower edge of the bridge crane | approx. 7.000 mm |
| No. of painters | max. | 1 |
| No. of painting sections | installed max. | 3 |
| Fresh air ventilator | Air capacity ¹ | 2 x 50.000 m ³ /h |
| | Motor power | 18,5 kW |
| Exhaust air ventilator | Air capacity | 2 x 50.000 m ³ /h |
| | Motor power | 18,5 kW |
| Air sinking speed ² | in the active working section | approx. 0,3 m/s |
| Fresh air filter unit | Pre-filter G3 | 86 % |
| Filter units | Separation efficiency 1st filter step impact separators approx. | 70 % |
| | Separation efficiency 2nd filter step paint mist separators | 97 % |
| | Max. paint throughput ² | 25 kg/h |
| Division of the painting area | acc. to DIN EN 12215 | Ex-Zone 2 |
| Installed heating capacity | Heat recovery system considered! | 2 x 270 kW |
| Heating media | Propane gas ³ | 50 mbar |
| Fresh air heating | From | - 5 °C |
| | To max. | + 20 °C |
| Luminous intensity | provided by the customer | |
| Operating voltage | 3-Phase N PE | 400/50 V/Hz |
| Control voltage | 1-Phase N PE | 230/50 V/Hz |
| Noise level inside the cabin | measured acc. to DIN 45635, noise measurements on machines „using the surface reflection method“ under free field conditions. The assessment level at the workplace acc. to VBG 121 and DIN 45645 may be higher due to background noises and/or room reflection. | < 85 dB(A) |

Note

¹ Acc. to DIN 24166 Precision class 3.

² Calculation basis: 50% solids with 50% solvents (water/organic), with 40% overspray acc. to the limit value of the TA- Luft (3 mg/m³ organic dust emission in the exhaust volume flow). The maximum solvent emission /h for the new painting system is to be agreed with the appropriate authorities. In case of exceeding the admissible threshold value an exhaust air cleaning system or the application of a reduction plan is absolutely necessary.

³ We require a gas analysis as well as the existing flow pressure.

Scope of delivery:

- Floor construction,**
3-lines for the dry separation with heavy-load impact separators, made of stable edged profiles, consisting of:

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- 1 Set Impact separators à approx. 3 m (registered by utility patent model no.: 202 10 968.2),**
for an aimed control of the exhaust air flow in the corresponding working section, completely incl. pneumatic drive.
- 1 Set U-shaped profiles U240 St52-3, L = 840 mm (provided by customer),**
as carrying element instead of the conventional gratings, with a max. wheel load of 30 kN on a load area of von 200 x 200 mm.
- 1 Set Upper and lower overspray collectors - 280 x 850 mm,**
made of steel plate with a thickness of 0,6 mm for pre-separation and capture of the overspray.
- 1 Lifting device „Gripper“**
for picking-up the U-shaped profiles out of the impact separators during maintenance works.
- 1 Paint separating cassette system,**
consisting of a cassette insert with special filter mat cassettes for paint mists.
- 2 Fresh air and exhaust air devices in modular design,**
consisting of:
 - 2 Ventilator parts (Fresh air and exhaust air ventilator),**
spark-proofed design (ATEX), incl. directly driven rotary current motors.
 - 1 Fresh air pre-filter,**
installed as filter inside the pre-filter, with differential pressure control and indication at the switch box.
 - 2 Jalousie flaps,**
to adjust the volume ratio of the fresh air and exhaust air.
- 2 Heating units,**
consisting of:
 - 1 Gas surface burner,**
range of control 1:20, incl. insulated housing
 - 1 Gas safety and regulating device**
 - 1 Burner guard**
with one burner relay
- 1 Necessary fresh air, additional air and exhaust air ducts**
acc. to DIN 24190, in sendzimir zinc design, incl. flange connections, sufficiently stiffened for the existing air pressure, consisting of:
 - 1 Additional air duct**
acc. to project drawing, incl. 30 long-range nozzles with volume flow control unit and pneumatically operated shutting flap

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- 1 Fresh air duct**
approx. 1 m above roof, max. 10 m above +/-, incl. extraction hood, bird protection grid
- 1 Exhaust air duct**
at least 3 m above roof ridge and at least 10 m above +/-, max. 13 m above +/-
incl. deflector hood
- 1 Differential pressure control device,**
to optically indicate the paint filter saturation and the pre-filter choking
- 1 Flow guard,**
to control the air flow, switches off the burner in case of a standstill of the ventilators and switches off the compressed air to the application system
- 1 Room thermostat**
to measure the cabin temperature
- 1 Electronically controlled temperature control device**
for the automatic control of the additional air temperature
- 1 Electrical switch box with control technique**
consisting of a closed switch box, protection category IP 54, design and devices acc. to the VDE-regulations, incl. wiring diagram
- 1 PLC Siemens S7**
- 1 Modem**

Pos. 1.1 1 Quick Clean System for separating the remaining overspray

Installed in two lines between the extraction ducts

Scope of delivery:

- 1 Set Floor covering (provided by the customer)**
consisting of a gratings in zinc design, designed for a wheel load of 50 KN (load area 200 x 400 mm).
- 1 Initial foil equipment**
with stable non-combustible foil.
- 1 Filter unit,**
Dimensions approx. 600 x 600 m, equipped with a cassette filter insert.
- 1 Exhaust air duct DN 200**
from the foundation to the filter unit and the exhaust air duct.
- 1 Sound absorber**

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Pos. 1.2 2 Heat recovery systems by plate heat exchanger for 50.000 m³/h

| Technical Data | | |
|--|--------|------|
| Fresh air volume | 50.000 | m³/h |
| Exhaust air volume | 50.000 | m³/h |
| Efficiency approx. | 50 | % |
| Pressure drop approx. | 200 | Pa |
| Average annual temperature (climatic zone 3) | + 8 | °C |
| Exhaust air temperature | + 20 | °C |

(Calculations and recommendations have been made according to the best of our knowledge corresponding to the latest experiences. They are to be regarded without obligation and do not give reasons for any legal right or any accessory obligations of the sale contract.)

Scope of delivery:

- 1 **Heat recovery system (plate heat exchanger),**
consisting of:
 - 1 **Housing**
made of wall cassettes, in sendzimir zinc design
 - 1 **Heat exchanger elements**
made of pure aluminium.
 - 2 **Transition pieces**

Pos. 1.3 1 Automatic segment control system incl. operator's recognition system

Automatic segment control system incl. operator's recognition system

The automatic segment recognition system (which is protected by utility model) switches the single sections automatically. The movement signal of the operator is given to the computer switching simultaneously the long-range nozzles in this section to working position (vertical ventilation) and opens the impact separators lying underneath in the floor channels for supplying heated fresh air exactly to the operator.

For excluding false reports caused by the presence of other persons than the operator the control system is only working when compressed air for the painting technique is used. The compressed air consumption is signalled by a flow guard in the compressed air duct and is processed by the computer.

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Pos. 2.0 1 Movable telescopic dryer

The movable telescopic dryer has three docking stations. Near the open-space painting system the dryer can be docked at three positions for effecting the drying process.

| Technical Data | | |
|----------------------------------|---|--------------------------|
| Inside dimensions approx. | Length parked position | 5.300 mm |
| | Length completely extended | 15.000 mm |
| | Width (largest segment) | 5.900 mm |
| | Height (largest segment) | 4.000 mm |
| Circulating air/drying operation | Air power ¹ | 30.000 m ³ /h |
| | Drying temperature approx. | 60 °C |
| | Exhaust air quantity ² | 1.000 m ³ /h |
| Installed heating capacity | | 200 kW |
| Heating media | Propane gas | 50 mbar |
| Travelling speed | | 5 m/min |
| Travel way | approx. | 45 m |
| Wheelset actuation | Electrical power approx. | 4 x 11 kW |
| Operating voltage | 3-Phase N PE | 400/50 V/Hz |
| Control voltage | 1-Phase N PE | 230/50 V/Hz |
| Noise level | measured acc. to DIN 45635, noise measurements on machines „using the surface reflection method“ under free field conditions. The assessment level at the workplace acc. to VBG 121 and DIN 45645 may be higher due to background noises and/or room reflection. | < 85 dBA |

Note

¹ Acc. to DIN 24166 Precision class 3.

² The actual exhaust air quantity in the circulating air/drying operation will be calculated in individual case.

Scope of delivery:

- 3 Housing segments,**
consisting of double-walled insulating panels with high stiffness, made of sendzimir zincated steel plate, incl. high-quality insulation with a thickness of 80 mm.
- 1 Maintenance door,**
dimensions approx. 800 x 2.000 mm (W x H), made of double-walled insulating panels.
- 2 Electrically operated light alloy roll-up doors,**
dimensions approx. 5.900 x 4.000 mm (W x H), made aluminium lamellas, control by ex-proofed push-button-deadman's switch.
- 6 Wheelsets**
- 4 Safety switch,**
installed at the corners, switches off the travelling gear in case of a contact.

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- 1 **Electric energy transport,**
by trailing cable installation.
- 1 **Reversing unit,**
incl. 2 motor-driven jalousies for reversing the airflow.
- 1 **Electric control panel,**
incl. the necessary buttons for:
 - onwards
 - backwards
 - Emergency exit
- 1 **Circulating air device in modular design,**
consisting of:
 - 1 **Ventilator part,**
spark-proofed design (ATEX), incl. directly driven rotary current motors.
 - 1 **Heating unit,**
consisting of:
 - 1 **Gas surface burner,**
range of control 1:20, incl. insulated housing
 - 1 **Gas safety and regulating device**
 - 1 **Burner guard**
with one burner relay
 - 1 **Necessary circulating air ducts,**
acc. to DIN 24190, in sendzimir zinc design, incl. flange connections, sufficiently stiffened for the existing air pressure, incl.:
 - 3 **Docking station,**
for the connection of the ventilation systems to the dryer, incl. jalousie flaps.
 - 3 **Jalousie flaps,**
for closing/opening of the circulating air to the corresponding position of the dryer.
 - 1 **Solvent exhaust air duct**
made of sendzimir zinc material, incl. pressure guard to control the minimum exhaust air flow acc. to DIN EN 13355 and/or DIN EN 1539 in the drying operation.
 - 1 **Differential pressure control device,**
to control the circulating air operation, switches off the burner in case of a standstill of the ventilators.
 - 1 **Room thermostat**
to measure the cabin temperature

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- 1 Electrical switch box with control technique**
 consisting of a closed switch box, protection category IP 54, design and devices acc. to the VDE-regulations, incl. wiring diagram

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Customer provided services

All the units and services not mentioned above that are necessary for the commissioning and installation of the machine as there are:

- Unloading from international transport on site as well as intermediate storage for machine components. Storage places for delivered machine parts, lockable storage room for tools and high-quality machine parts
- Provision of sanitary installation for the assembly personnel as well as telecommunication
- Procurement of all official approval and cost arising therefrom for the installation and operation of the machine as well as official acceptance and costs for any tests and expert opinion, if necessary. If desired we can support you for the meetings with the authorities.
- Special regulations and subsequent modifications must be notified, there are not in our charge.
- Examination of the structural dimensions acc. to the foundation and installation plans as well as the local requirements.
- Masonry, mortise and roof works, incl. their supervision and statics, e. g. like foundation works, break-throughs of walls, ceilings and roof as well as their sealings, flashings and fixings, unless otherwise agreed.
- Foundations and solidums corresponding to the structural dimensions acc. to DIN 18202.
- Safety illumination for working places resp. for escape routes, with declaration of the nominal working time of the substitute source of current and of the minimum illumination we could prepare a corresponding quotation
- Delivery and installation of frames in walls, ceilings and foundations acc. to our details
- Provision of hall and foundation plans on data carriers as DWG- or DXF- files.
- Operation material such as paint, chemicals, oils, greases, compressed air etc.
- Media supply (electro, pump hot water, gas, oil, compressed air) incl. installation material as well as maintenance units or compressed air preparation (compressed air min. 6 bar with a max. water steam content of 1,3 g/Nm³ and 0,1 ppm oil steam content) to the components of the machine (switch box, pneumatic switch box, burner etc.)
- Assembly tools acc. to the assembly schedule such as cranes, fork stackers, lifting platforms, mobile crane etc., as well as safety precautions acc. to our details
- Provision of required energy carriers like current, water, compressed air etc for the assembly period.
- Connection and commissioning of oil/gas burners by the local service, incl. 1 1/2" tube piece for the installation of a gas volumeter as well as stop valve with armatures and possible required pumps, tube piece with a length of 330 mm, equipped with union nuts at both sides.
- Gas volumeter.
- If oil or gas burners are installed a condensate discharge duct is to be provided with condensate discharge container and condensate disposal. Counter-pressure free duct connection for the condensate within a radius of 3 m around the neutralization system.
- Neutralization system for the condensate of the heat exchanger.
- Steel construction for fixing and supporting the air ducts acc. to our details
- Fixing points for supporting and fixing the air ducts and exhaust gas ducts after consulting the structural engineers and architects. The fixing material will be provided by SLF, the possible partial roof sealing will be carried out by the customer.
- Support construction for aggregates and system components, service bridges or maintenance platforms with vertical ladder and railing.
- Blocking off and protection of danger zones acc. to the state of the art.
- Isolation heat guiding lines and channels.
- Connection for high-voltage protector.
- Modem telephone connection near the main switch box incl. integrated telephone number.

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- Feed-through sleeves of the roof and sealing as rain protection are to be delivered by the roofer.
- Earthing or earthing point for the plant.
- Fire extinguishing unit.
- Aggregate room for the ventilation and deventilation, including doors, illumination etc..
- Exhaust air cleaning systems if required by the authorities. If desired we are going to prepare a corresponding offer for you.
- Covering of foundation and assembly pits, suitable for passing over with lifting platforms or fork lifters during the assembly period.
- Installation of electric switch box outside the ex-zone, but within a radius of max. 10 m around the plant.
- Covers for the impact separators - U-shaped profiles U 240 L = 840 mm acc. to our drawings.
- Gratings for the Quick-Clean System acc. to our details
- Application unit incl. paint supply system.
- Fresh air cooling units, in case of outdoor temperatures of more than 25°C
- Fresh air humidification units, in case of a rel. humidity of $\leq 50\%$
- Fresh air dehumidification units, in case of a rel. humidity of $\geq 70\%$
- Electrical assembly by the local electrician, electrical connections and lines from the switch box to the consumers, incl. installation material
- 6 skilled workers (mechanics – electricians) will be provided free of charge by the customer, working time 50 weekly hours.
- Finishing paint, incl. paint material.

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