

# The Integral-C Powder Recovery System

Economical and right in practical use for every application

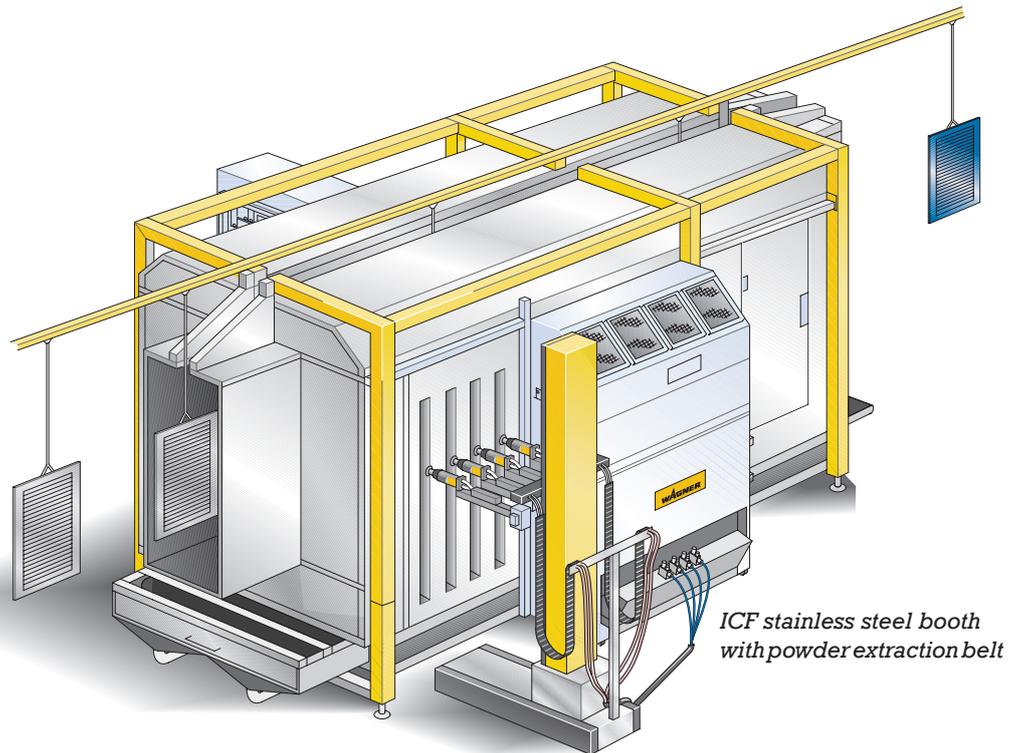


# The highest material utilisation.

## With the WAGNER Integral C filter system

The choice of the right system components depends on the nature of the work-piece, the rate of throughput and the coating process. When choosing the best powder recovery system the frequency of colour changes and the finished quality required play an especially large role.

For up to 3 standard colours the ICF booth with filter recovery is the most efficient powder separation system (ICF = Integral Compact Filter).



*ICF stainless steel booth with powder extraction belt*

### The benefits:

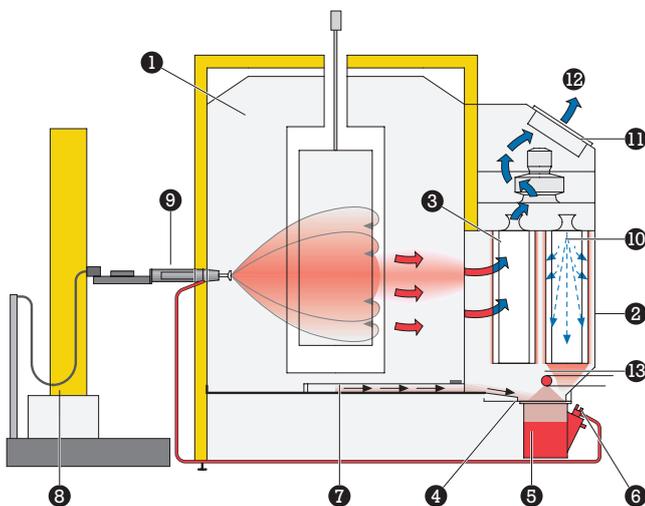
- suitable for all applications where a few standard colours are used
- the complete filter unit can be replaced making fast colour changed possible
- almost 100% powder separation for greater economy
- all functional units are

optimally matched to each other: powder recovery, preparation and powder supply

### The benefits of a stainless steel booth

- stable construction, smooth walled design
- high grade stainless steel
- low powder adhesion, easy to clean
- a horizontal booth floor which can be walked on
- powder extraction belt as an option

### The functional process



The coating powder which is sprayed past the work-pieces is carried by the air stream extracted from the booth and separated out at the filter elements. The cleaned air flows through the filter mats and is then fed back into the workshop.

During operation of the equipment the filter cartridges are individually cleaned and regenerated one after the other.

The separated powder is sieved on the integral sieving machine and returns into circulation via the spray system.

### Continuous removal of the over-spray

In addition to this the powder which falls to the floor of the booth is constantly fed back into circulation by the powder wiper or the powder extraction belt.

- 1 Powder spray booth
- 2 Filter trolley
- 3 Filter elements
- 4 Sieving device
- 5 Powder container with level sensor
- 6 Powder transport injector
- 7 Powder wiper (special accessory)

- 8 Reciprocator
- 9 Powder spray gun
- 10 Cleaning air stream
- 11 Filter mats
- 12 Clean air exit
- 13 Fresh powder container

# Powder changing made easy.

## Faster and more efficient colour changes

### Easy to clean

IC powder coating booths are made of high grade materials. A feature of the smooth stainless steel walls is the very low powder adhesion giving a reduction in the time needed for cleaning and for colour changes.

### Fast powder colour changes for standard colours

In practical use the filter recovery unit is easily fitted and removed with a few actions and replaced with a clean one or one used for another colour.

The integral sieving machine and the powder injectors are replaced with it in each case. This quick change



procedure with replacement of the complete assembly is mainly used for standard colours.

### The benefit

Colour changes become even faster and safer. The sieving machine and filter cartridges are easily accessible and replaceable for maintenance purposes.

### Everything integrated

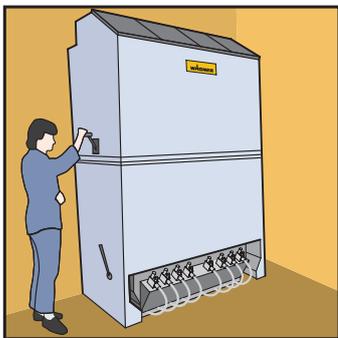
WAGNER Integral C powder coating booths unite the power spray booth, the recovery system, the powder preparation and the powder supply in a compact structure. The Integral-C-system with its very short powder supply trolley is thus fully functional without the provision of external powder supply equipment and sieving machines.

### Optimal function

All functions of the equipment are optimally matched, and together with the WAGNER powder spraying equipment they guarantee that the most varied coating tasks in the surface finish sphere can be fulfilled to a high level of quality and economy.

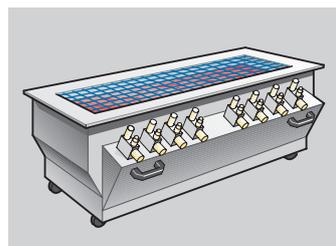
### All power classes

Integral-C-booths come in all sizes. The wide range of variants and equipment provides the right solution for every application.



## Powder trolley, filter cartridges and injector – precision technology has gone into the detail design

The powder is continually sieved in the closed powder circuit. The sieving machine is easily removed when the powder container is uncoupled. High grade filter cartridges filter out any powder sprayed past the workpiece from the air flow so that the exhaust air can be returned to the workshop.



### The powder trolley

- equipped with vibratory sieve and fluidised bed
- easy to handle, 4 spherical head castors
- capacity around 140 litres



### The filter cartridges

- high grade polyester fleece filter
- very high stability (no abrasion of fibres) and high tear strength
- guaranteed long service life



### The PJ 2020 PRS injector

- precise dosing
- smooth even powder delivery for optimal coating results

# Greater economy for multi-colour operation: With the WAGNER Integral Compact Multi-cyclone system

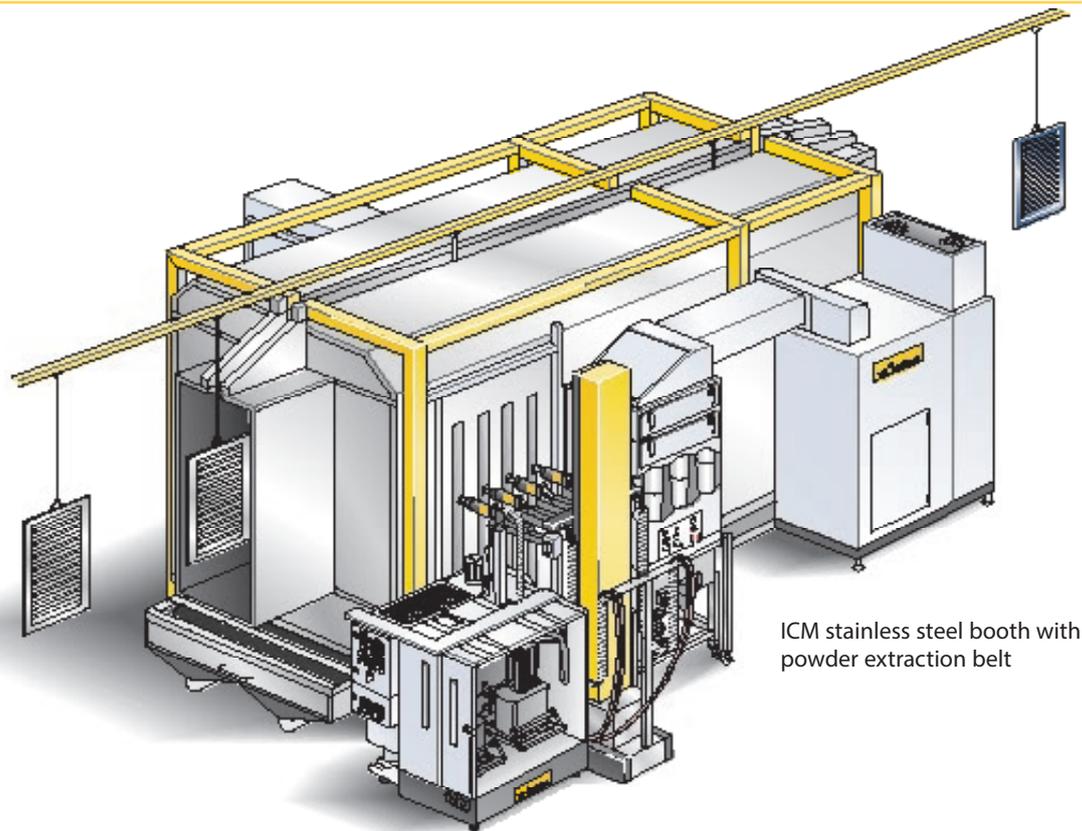
The ICM powder spray booth system (ICM = Integral Compact Multi-cyclone) was specially developed for multi-colour operation and quick reliable powder changes. This pioneering technology has proven its worth in several hundred multi-cyclone booths which have been installed since it was launched onto the market.

## The multi-cyclone system

9 small sized cyclones in a space of only 1 m<sup>3</sup> and a booth waste air output of up to 12,000 m<sup>3</sup>/h provide optimal powder recovery. The continuous efficiency rating is 95 - 98 %!

## The benefits:

- high rate of air throughput up to 12,000 m<sup>3</sup>/h per unit
- the continuous separation efficiency rating is 95 - 98 %
- low installed height
- easy to clean, the multi-cyclone separator is totally visible and has no pipe connections
- a wide range of applications

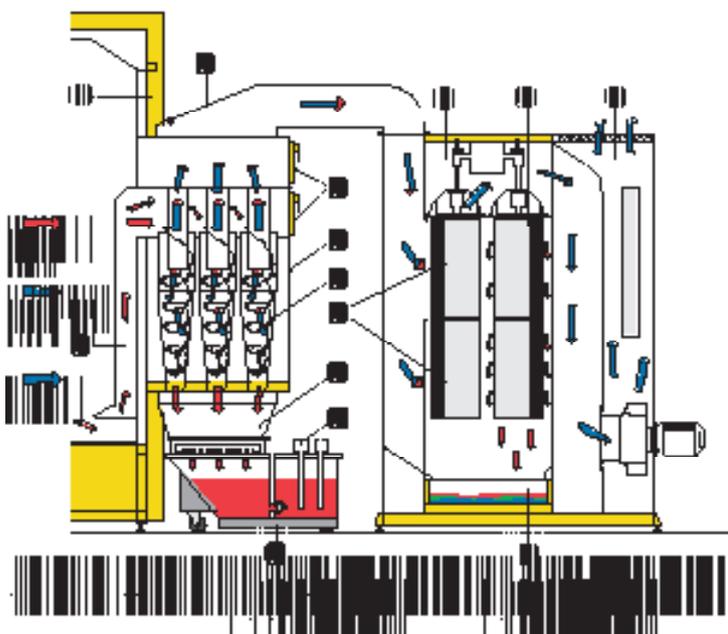


ICM stainless steel booth with powder extraction belt

## The benefits of a stainless steel booth

- stable construction, smooth walled design
- high grade stainless steel
- low powder adhesion, easy to clean
- a horizontal booth floor which can be walked on
- powder extraction belt as an option

## The operating principles



## Functional description

The powder not applied to the work-piece is carried by the gentle flow of exhaust air to the suction channel and then into the multi-cyclone, where it is distributed evenly between the individual cyclones.

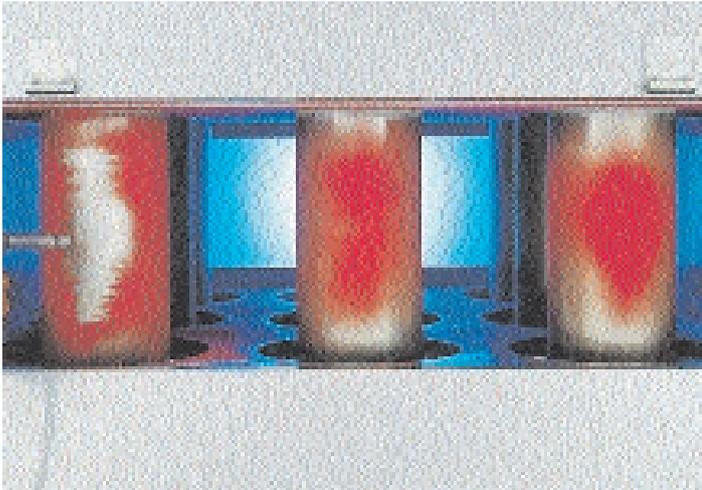
The small diameters gene-

rate high centrifugal forces giving a very high separation efficiency. The powder which is spun out falls through the stabilising zone directly onto the sieving machine and into the powder conveying container. The circuit is thus completed by the shortest route. The cleaned air flows through the exhaust cowl and through the back filters back into the workshop.

- 1 Suction channel
- 2 Pressure relief flap
- 3 Powder conveying container
- 4 Inspection covers
- 5 Integral multicyclone separator
- 6 Cyclone
- 7 Back filter element
- 8 Stabilising chamber
- 9 Powder injector
- 10 Clean-air chamber
- 11 Automatic filter cleaning
- 12 Powder collecting pan
- 13 Clean-air exit

Versatile in use:

# Multi-cyclone systems with integral or external powder circulation

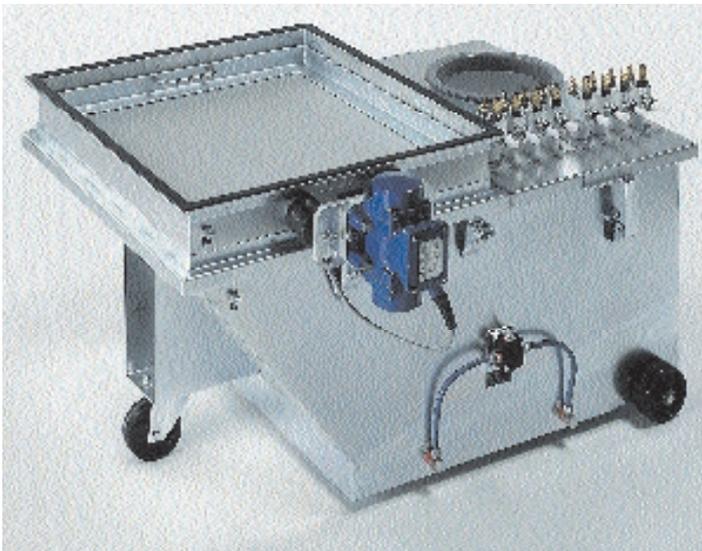


### Highest efficiency rating

The whole inlet chamber of the IMZ separator is easily accessible from the interior of the booth and through the inspection hatches. It is cleaned by using the blower gun, with the suction running.

Due to the self cleaning properties of the IMZ powder separator it can be cleaned in 3-5 minutes. Only for extreme colour changes, e.g. from black to white, are a few additional minutes needed for more thorough cleaning.

The interchangeable powder conveying trolley, which is detached, is cleaned whilst the coating is in progress and changed for the next colour. If the WAGNER multi-cyclone system is compared to conventional mono-cyclone systems, the main point which will convince you will be the high continuous efficiency of up to 98 %, especially with frequent powder changes.



### ICM powder trolley with sieving machine

The powder trolley and the sieving machine are integrated below the stabilising zone of the multi-cyclone. The powder trolley is equipped with a fluid bed plate. The coating powder is uniformly fluidised by the inflowing air, allowing the injector to deliver the powder in an optimum fashion. The powder container can take up to 16 injectors.

- Large powder capacity of around 200 litres
- Short powder routes
- Reliable powder supply properties
- Powder injectors are easily accessible

### Range of accessories

- Plate for the injectors (arranged in 4s) suitable for blow out appliance
- Sensor - injector plate for Powder Flow Control (=PFC) equipment

### Benefits:

### Sieving conveying trolley with peristaltic powder conveyor

This variant of powder preparation and supply is the connecting link for powder supplies from the original drum in the powder centre and for the circulation mode. It is of particular benefit for multiple daily powder colour changes and for shorter change intervals.

### The benefits

- Savings in powder loss
- Saving on extra powder trolleys
- Reduction in colour changing and cleaning time

- Virtually dust-free return of the powder into the original drum



# The powder extraction belt: No build up of powder – perfect powder circulation

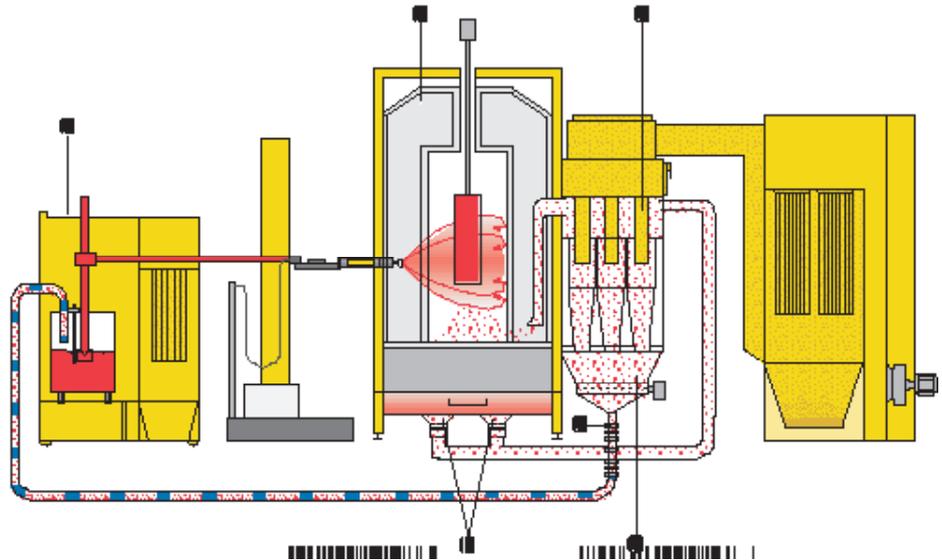
## A 100% powder circulation

The powder which falls to the floor also has to get back into circulation by the shortest route. For this WAGNER has developed the powder extraction belt for an ideal powder circulation. Manual work is eliminated with this because the powder particles which drop to the floor are continuously removed from the booth by the transport belt, sucked up once outside and fed back into the powder circuit via the separator system. This circulation ensures continuous coating without the usual downtimes for cleaning the booth.

The powder from the powder centre (1) is charged up in the gun by high voltage or by friction. The powder which is sprayed past the work-piece is either carried to the powder recovery unit (3) by the powder extrac-

tion belt (2) or removed directly from the booth (4) by the multi-cyclone or the filter system. The powder collected and sieved in the sieve trolley (5) is then transported carefully and virtually free of dust back to

the powder centre by the peristaltic conveyor (6) and transferred into the original powder container from where it is returned to the powder circuit.



## The operating principle

- |                             |                               |
|-----------------------------|-------------------------------|
| 1 Powder centre             | 4 Stainless steel booth       |
| 2 Powder extraction belt    | 5 Sieve trolley               |
| 3 Powder recovery equipment | 6 Peristaltic conveyor system |

## The benefits for the user:

- Stabilisation of the powder grain size range due to the overspray being continually fed back into circulation by the transport belt
- Powder coating with low material usage. Only the optimum amount of powder is in circulation
- Trouble-free colour changes without changing the extraction belt
- The belt can be walked on due to its sturdy construction; no tripping points

- The transport belt is made of electrically conductive material
- No contamination of the coating powder due to erosion of fibres or wear of the belt, thus ensuring perfect coating quality
- The German ZH / VDMA regulations are taken into account to a greater extent

## The powder extraction belt



## The powder wiper



- |                                      |
|--------------------------------------|
| 1 Powder wiper                       |
| 2 Sieve unit                         |
| 3 Powder container with level sensor |
| 4 Injectors                          |

A cost effective variant is the powder wiper which removes the powder within its arc of swing and pushes it into the powder container.

# Practical powder supply for multi-colour operation. Economical and right for practical use

## The powder centre is ideal for multi-colour operation

Using the WAGNER Airfluid principle the powder is pumped direct from the original container. The powder centre is integrated into the powder circuit i.e. the recovered powder is continuously returned to the powder centre and re-used in the circulation system. The following equipment is used, depending on the task specified:

- 1 or 2 vibration tables to loosen up the coating powder
- Pneumatic clamp for the powder container
- 1 or 2 Airfluid suction units to supply the powder guns
- Fresh powder added into the circulation container, if option chosen

- Suction unit for powder dust with a waste air throughput of 4000 m<sup>3</sup>/h
- Up to 12 powder delivery injectors PJ 2020 PRS
- Gun blow out device

## The benefits for the user:

- No extra powder containers needed for different colours
- Quick colour changes
- Powder circulation system using the original container
- Automatic addition of fresh powder, level controlled
- Economical use of materials



## Addition of fresh powder with tube pump

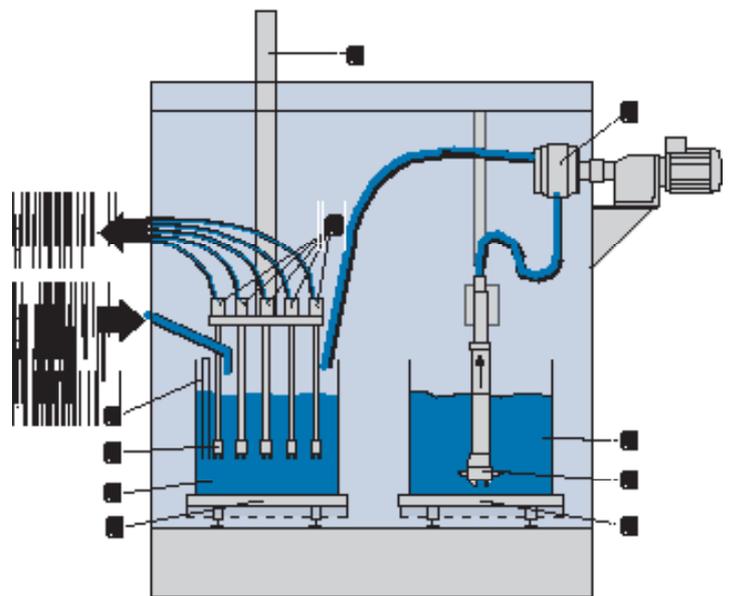
A high supply rate for the fresh powder being added to the circulation drum - with the new fresh powder delivery unit! And the tube pump, based on the peristaltic principle, ensures a virtually dust-free supply of powder. If the fresh powder runs out a new drum can be installed without having to interrupt the coating process.

- Dust-free powder supply
- High delivery rate from the tube pump
- Optimal powder flow characteristics due to fluidisation and vibration
- Fast and easy colour changes
- Replacement of the original powder container without interrupting the coating process

## The operating principle

The minimum level sensor (6) signals when the level in the powder drum goes below the set limit. The fresh powder (8) is then fed via the fluidising unit (2) and a tube pump (1) directly into the container with the circulating powder (7). The suction pipes (4) are fitted with fluid bodies which ensure that the powder has optimal flow characteristics. The vibration tables (3) ensure a homogeneous powder mix.

## All the benefits at a glance:



- |                                |                        |
|--------------------------------|------------------------|
| 1 Tube pump with drive motor   | 6 Minimum level sensor |
| 2 Fluidising unit              | 7 Circulating powder   |
| 3 Vibration table              | 8 Fresh powder         |
| 4 Suction pipe with fluid body | 9 Linear unit          |
| 5 Powder injector              |                        |

# Perfect and economical surfaces – WAGNER represents international expertise in powder coating

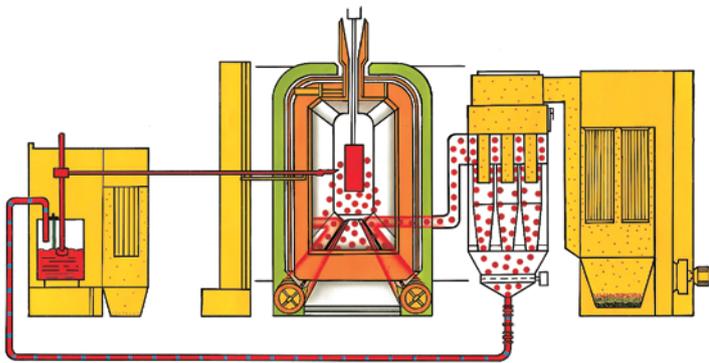


## Expertise and experience!

### From Development right through to Service

Day in and day out millions of different components are coated in WAGNER powder coating plants throughout the world. Over 30 years of experience by WAGNER in everything to do with powder coating make this possible. The continual investment in our own research and development allows us to be directly and effectively involved in the progress of powder coating technology. In this our objectives are to increase the economy and production safety at our customers and to safeguard raw materials. Along with the latest technology a deciding factor in our production is reliable service.

Down time costs money. This is why all coating requirements on the customers work-pieces are tested in a modern Technical Centre and results put into practice. WAGNER can be with you on site in the shortest possible time no matter where you are. Our international service team will never leave you longer than 24 hours without help. The latest communications technology is used by us to recognise problems using remote diagnostic techniques and to solve them in the shortest possible time.



## Technology and know-how all from a single source

Whether it's application, recovery technology, powder circulation or control and movement technology WAGNER is your expert partner when it comes to compete coating equipment. WAGNER develops and supplies all the components for the plant from a single source. This allows all

the requirements of our customers to be integrated into an overall concept right from the start to give an economical and perfect surface finish. Technology and know-how are matched with each other in an ideal manner.

## Quality and safety with DIN ISO 9001

Our internal quality assurance system consistently covers all areas of a company. With our certification to DIN ISO 9001 we guarantee that peak quality is the norm here. All products are subjected to an uncompromising quality control in our own testing and measurement facilities. Our aim is

become a recognised partner to industry as a result of our customer oriented innovations and our service performance. And you can rely on this in the future.

