
# IBO – Extraction Hoods and Filter

For the capture
and cleaning
of fumes from
induction crucible
furnaces

The ***Tornado®*** - System,

the ***Filter***-System

and more!

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IBO
Ingenieur-Büro-Ohnemus

***Notes:***

# IBO-Ingenieurbüro Ohnemus GmbH

**has been designing, constructing, and producing complete extraction solutions, special machinery for the foundry and smelting industry, as well as filtration systems since 2002.**

**A key focus is the dust extraction of furnaces through the specially developed and patented Tornado air extraction hoods.**

**IBO-GmbH specializes in this field and possesses extensive know-how and experience. This, along with the continuous development of its own extraction technology, has made IBO-GmbH one of the world's leading manufacturers of ventilation technology systems for this sector.**

**Benefit from our customized, tailored solutions from a single source - ranging from design and construction to manufacturing, assembly, and commissioning, as well as after-sales service that includes maintenance, repairs, and the supply of spare parts.**

**Another key area is the planning, development, construction, and manufacturing of custom designs according to customer specifications.**

**With us, your ideas are effectively realized and seamlessly implemented!**


**Officially Registered Company Name**

**IBO-Ingenieurbüro Ohnemus GmbH**

**Engineering Office for Mechanical, Vehicle, and Plant Engineering**

**Ettenheim**

**Hereinafter referred to as**

**IBO-GmbH**

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IBO extraction hoods are used for detecting the fumes of induction or melting and holding furnaces.

The covers are designed specifically for the foundry area. IBO hoods are aerodynamically designed and especially constructed for harsh conditions in the melting area, meaning they are fully prepared to meet the high demands of daily use in foundries and steel mills.

Efficient capture of the flue gases, longevity of the hoods, and their ease of use and maintenance, testify to the high quality and years of experience in design and manufacturing.

Because of their adaptive designs, IBO hoods are ideal for retrofitting existing furnaces as well as for new installations. They are also available in different types and designs. This ensures that the best solution will always be provided to meet the individual requirements of the customer, tailored to the particular furnace, the work processes and the surrounding environment.

Discover the many possibilities!

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## All Tornado® benefits at a glance:

**Efficient extraction of the fumes in all phases of operation**

**Energy saving by an integrated furnace cover, air flow control and an optimized design for less false air, less pressure loss**

**Robust design, easy to maintain**

**Custom made – individually adapted to the furnace, the melting area, charging wagon, ladle, operating process etc.**

**Ease of operation - Hydraulically operated, no mechanical interlocks: The hood is moved by the operator by using buttons or levers in the control booth**

**Safety valves to prevent the hood from falling in case of a pressure drop**

**Good access and visibility to the melting bath and the furnace spout**

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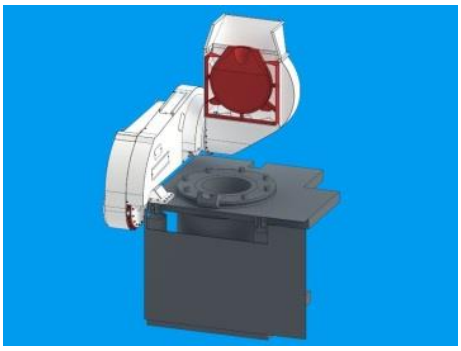
## Example

## Extraction Hood

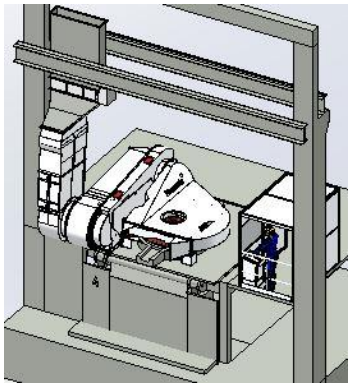


**Tornado K ®** with one duct is an **all-rounder**!

- Single duct
- Double swiveling
- Suitable for induction furnaces of all sizes
- Connection to the pipeline in the pivot axis of the furnace

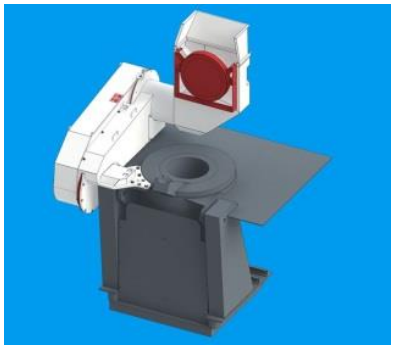
**Tornado TK ®** with a telescopic duct for a **rear tipping function!**

- With a telescopic duct
- Double swiveling
- Suitable for induction furnaces of all sizes
- Connection to the piping can be made in the pivot axis of the furnace or externally



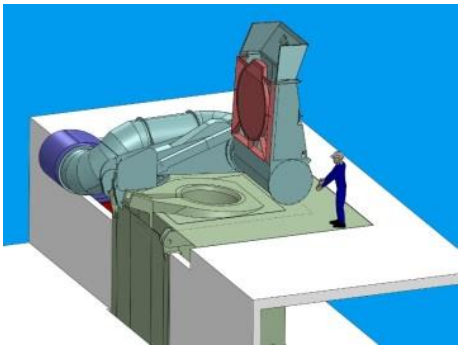
**Tornado C ®** the chameleon of the hoods, **fits perfectly** in **any environment**!

- Connection to the pipeline – independent of the fulcrum and furnace platform
- Telescopic duct
- Double swiveling
- Suitable for induction furnaces of all sizes



**Tornado L ®** is the light version! **Cheap**, but **effective dust removal**.

- One cylinder
- Double swiveling
- Change of swivel direction by operating a lever on the duct
- Connection to the piping at the pivot axis of the furnace



**Tornado H ®** captures particularly hot flue gases, for example, in steel production

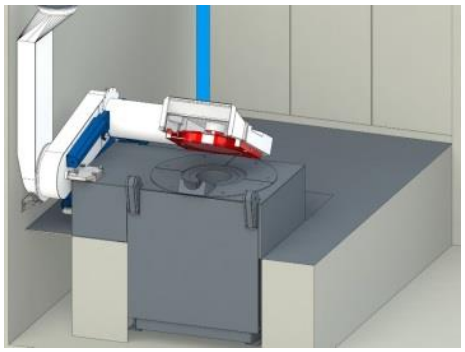
- Round tube duct
- Double swiveling
- Suitable for induction furnaces of all sizes
- Connection to the piping depending on the version
- Also available in **'special' versions (SH)**

## Example

## Extraction Hood

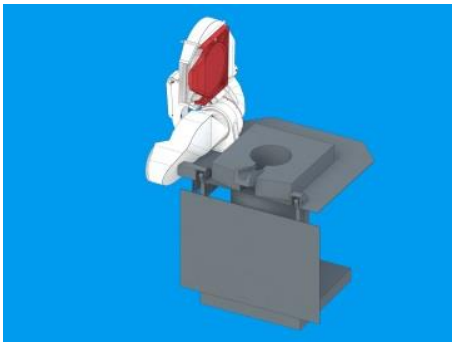
**Tornado XXL ®** captures large air volumes, for example, during magnesium treatments of molten iron or when charging critical material

- Designed for high air intake
- Double swiveling
- Compatible with induction furnaces of all sizes
- Piping connection adaptable to the process, available as XXL-K, TK and -R models



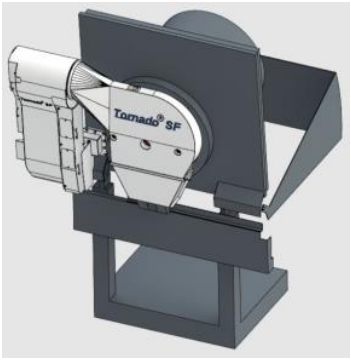
**Tornado Mini ®** for furnaces with a small crucible diameter

- Manually operated
- Double-swiveling design
- Fast and easy installation
- The pipe connection is made in the furnace pivot axis



**Tornado SO ®** for lateral charging

- Opens laterally
- Suitable for induction furnaces of all sizes
- Pipe connection depending on the design
- SO-1: One pivot axis (lateral)
- SO-2-V: Two pivot axes (lateral and front)
- SO-2-H: Two pivot axes (lateral and rear)




**Tornado SF ®** for very small ladles

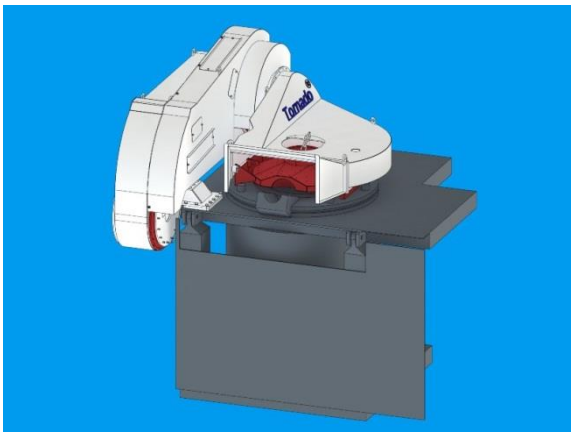
- Flat design allows clearance for crane rope
- Double swiveling
- Pipe connection at the furnace´s pivot axis

***Looking for more extraction solutions?***
***Visit our homepage and send us a request with your ideas!***
***We'll be happy to develop an individual extraction concept together!***
***We are also very interested in your suggestions for improvements and new ideas!***

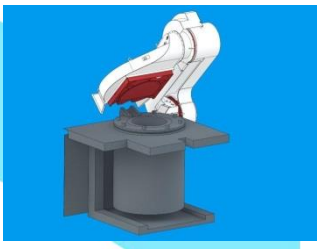
*Extraction Hood*

# Tornado ®

# K

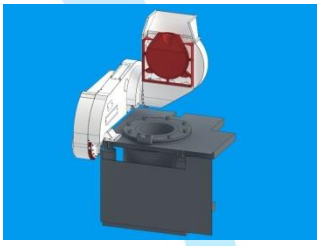


Charging

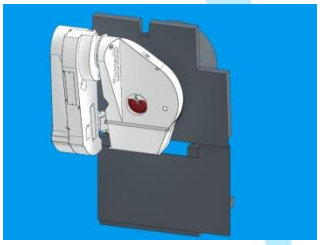


Max. rear side opening

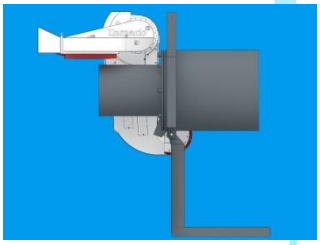
Max. front side opening



Pouring



Ejection of the lining



**Simply rugged**

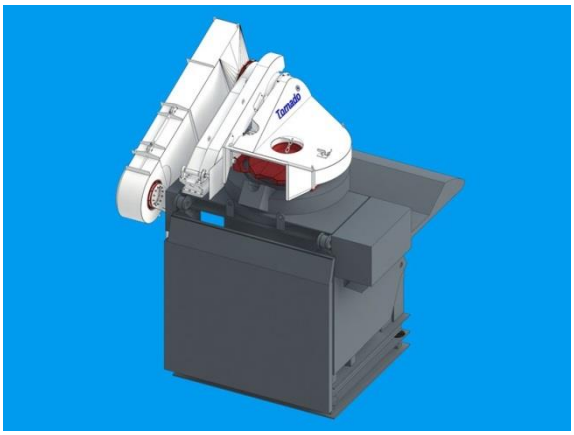
The Tornado K is the most frequently used 'all-rounder.'

The hood is suitable for furnaces of all sizes.

The connection to the extraction duct is aligned with the furnace pivot axis.

A cutout in the furnace platform may be required for this purpose.

- **Double swiveling (front- and rear)**
- **Suitable for crucible induction furnaces of all sizes**
- **Connects to the exhaust duct in the pivot axis of the furnace**



*Extraction Hood*

# Tornado ®

# TK

**For furnaces with rearward tilt**

The Tornado TK exhaust hood is used for furnaces that have a rearward tilting function for slagging.

It features a laterally mounted telescopic duct and is suitable for furnaces of all sizes.

The connection to the extraction line is aligned with the furnace pivot axis.

If necessary, a cutout in the furnace platform may be required for this purpose.

- **Double swiveling (front- and rear)**
- **Suitable for crucible induction furnaces of all sizes, especially for those furnaces with rearward tilt function**
- **The pipe connection can be easily connected to the furnace`s pivot axis or externally**
- **Effective fume extraction in all operational phases**

Charging

Max. rear side opening

Deslagging with suction

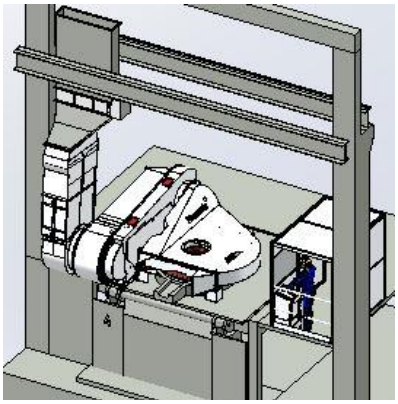
Max. front side opening

Pouring

*Extraction Hood*

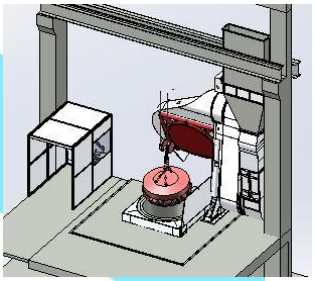
# Tornado ®

# C

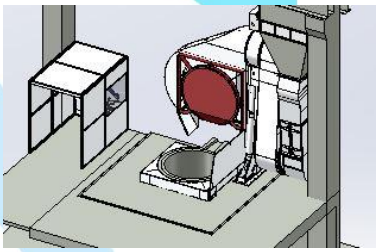


- Example Hood -

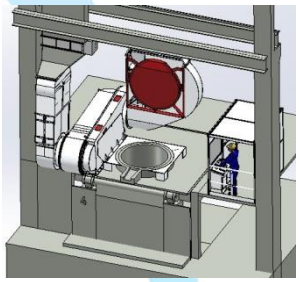
Charging



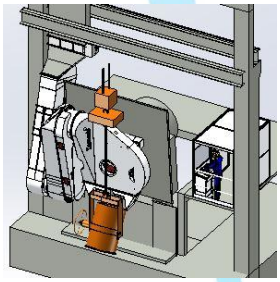
Max. rear side opening



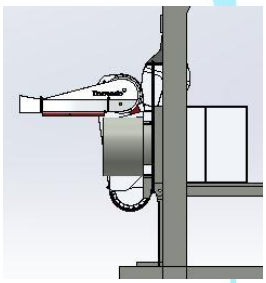
Max. front side opening



Pouring



Ejection of the lining



**Ideal where space is limited**

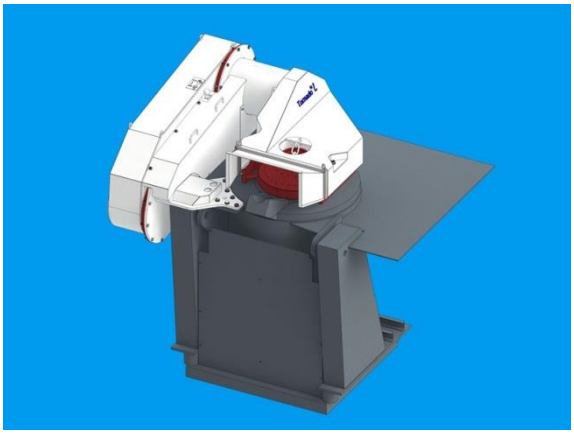
The Tornado C is often used in confined spaces or for retrofitting existing furnaces. It is equipped with a telescopic duct.

The connection to the piping does not have to be in line with the furnace pivot axis.

The connection point can be further moved upwards and backwards.

This means that no parts of the hood extend over the front edge of the furnace, and there is no need to create a cutout in the furnace platform for the piping connection.

- **Double swiveling (front- and rear)**
- **With telescopic duct**
- **Suitable for induction crucible furnaces of all sizes, especially in confined spaces**
- **Independent of the furnace platform and pivot axis**



*Extraction Hood*

# Tornado ®

# L

**For small to medium furnace sizes**

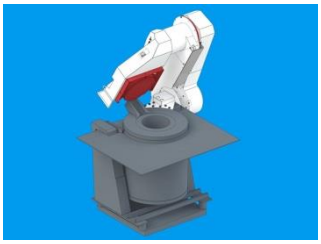
The **Tornado L** is designed for smaller furnaces with a medium crucible diameter.

It features a single cylinder.

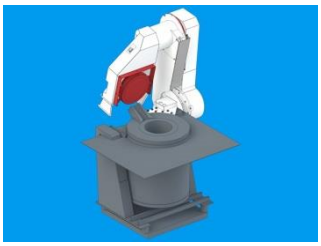
The swiveling direction of the hood can be selected via a lever on the duct, allowing it to open either forwards or backwards.

Additionally, it includes all the advantages of the Tornado series, efficiently capturing all the flue gases.

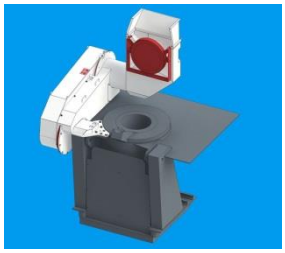
- **Double swiveling (front- and rear)**
- **One cylinder**
- **Simple adjustment of the swiveling direction by using a lever on the hood`s duct**
- **Suitable for induction crucible furnaces with a average crucible diameter**
- **The piping connection is made in the furnace pivot axis**



Charging



Max. rear side opening



Max. front side opening

Pouring

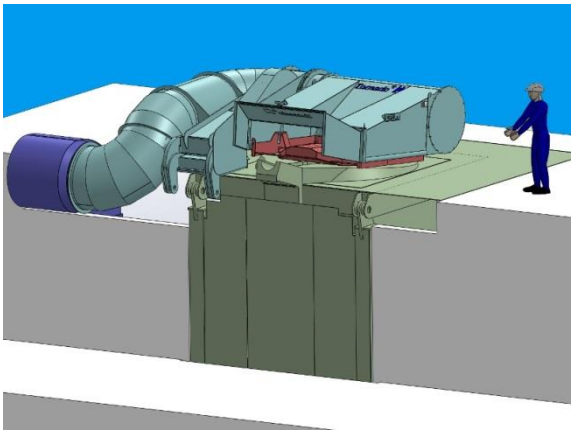
Ejection of the lining

*Extraction Hood*

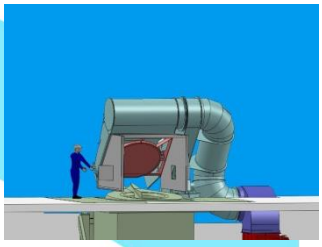
# Tornado ®

# H

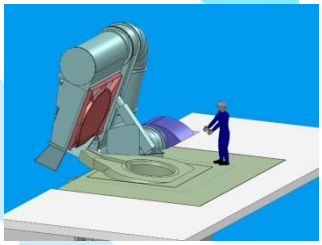
***high or flat furnace body***



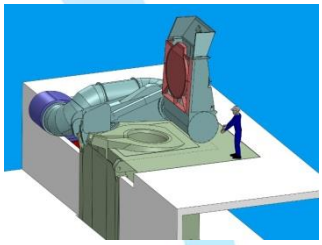
Charging



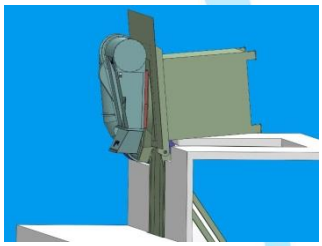
Max. rear side opening



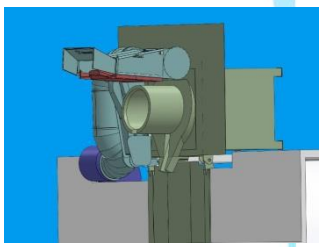
Max. front side opening



Pouring



Ejection of the lining



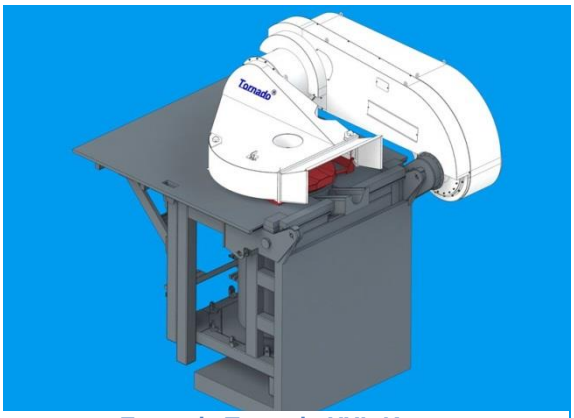
**For capturing Hot flue gases**

The Tornado H, available with a high or flat hood body, features a design optimized for high exhaust temperatures.

This makes it an ideal capturing device for dusts and gases from induction melting furnaces, such as during steel production or when using oil-contaminated, dirty scrap materials that cause high exhaust temperatures.

The extraction hood is aerodynamically optimized for the best possible capture and durability, specially designed to withstand high temperatures, and built to be extra robust and durable due to heavy usage.

- **Double swiveling (front- and rear)**
- **Equipped with a round piping duct Suitable for crucible induction furnaces of all sizes**
- **The piping connection is made in the furnace pivot axis**
- **Features a flat hood body to allow pouring into a ladle fixed to a crane without pushing it away**
- **Especially designed for the extraction of particularly hot flue gases, for example, from induction crucible furnaces in steel production**



- Example Tornado XXL-K -

*Extraction Hood*

# Tornado ®

# XXL

***Also available as a -TK or -R***

**For capturing particularly large volumes of flue gas**

The **Tornado XXL** is utilized in situations where particularly **large extraction volumes** are required for flue gas capture.

This is especially relevant in the production of ductile iron through the pour-over method with magnesium treatment of liquid iron in large ladles positioned in front of the furnace, or when using coated and contaminated scrap.

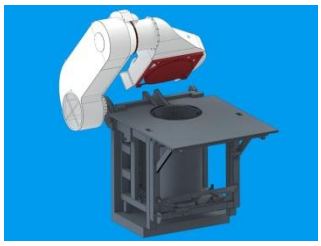
The **Tornado XXL** is available in the following versions:

**-K** (with side duct)

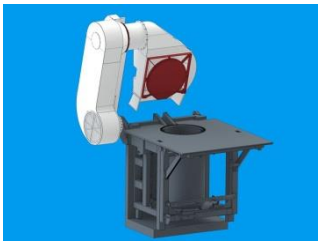
**-TK** (furnaces with rearward tilting functions)

**-C** (for confined spaces).

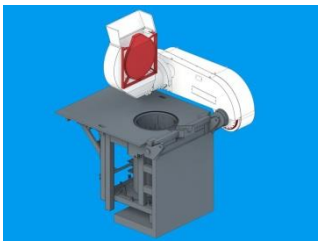
- **Double swiveling (front- and rear)**
- **Suitable for crucible induction furnances of all sizes**
- **Specifically designed for the extraction of large volumes of air, for example, during magnesium treatment of liquid iron in very large ladles positioned in front of the furnace or when charging galvanized, oily, or coated materials**
- **The connection to the exhaust duct varies depending on the version**



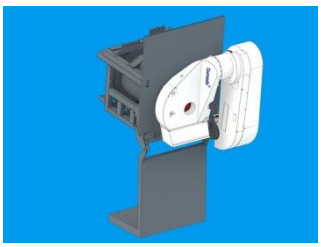
Charging



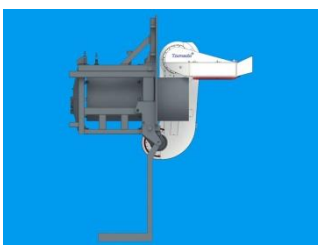
Max. rear side opening



Max. front side opening



Pouring

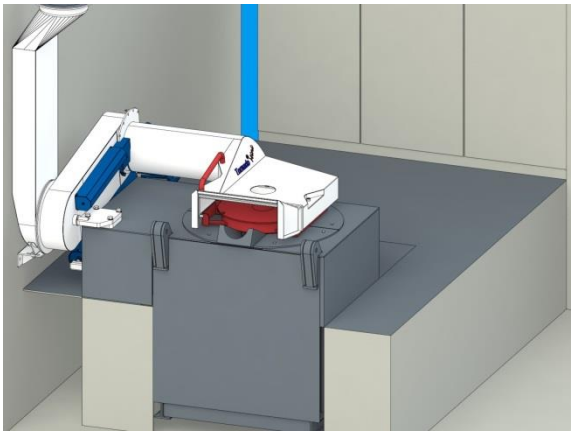


Ejection of the lining

*Extraction Hood*

# Tornado ®

# Mini



**Manually Operated with Spring Assistance, for Small Furnaces**

The **Tornado Mini** among all the Tornado hoods has been specifically designed for small furnaces with a small crucible diameter.

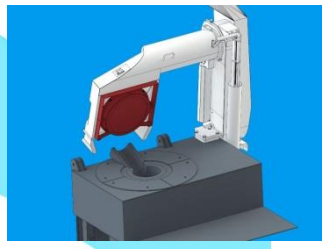
This hood is operated solely by hand, with the operator being assisted by springs during the movement of the hood.

The hood can be opened smoothly backward and to predefined positions forward.

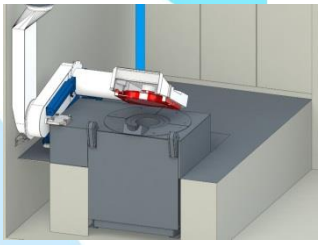
In terms of efficiency for flue gas capture, the **Tornado Mini** offers the same advantages as the hydraulically operated Tornado hoods.

- **Double swiveling (front- and rear)**
- **Manually operated – Integrated springs assist the operator in moving the hood**
- **Integrated furnace cover**
- **Quick installation – No hydraulical or electrical connections required**
- **Applicable for furnaces with a small crucible diameter**
- **Connection to the exhaust piping is made in the furnace pivot furnace**

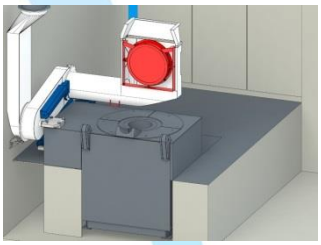
Charging



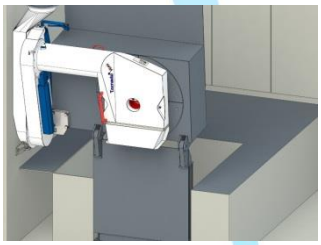
Max. rear side opening



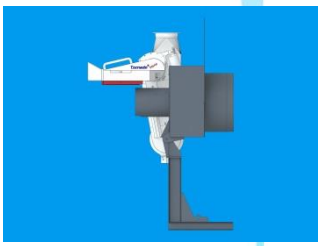
Max. front side opening

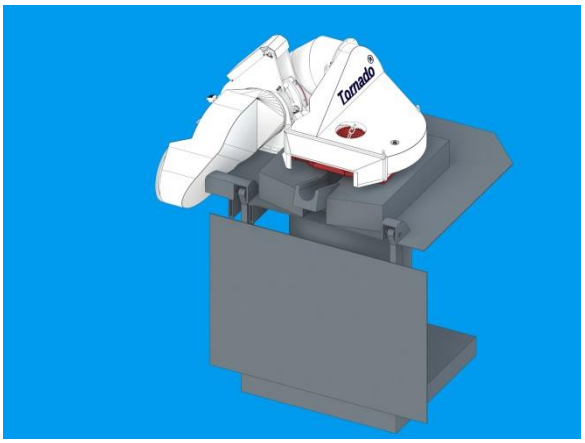


Pouring



Ejection of the lining





*Extraction Hood*

# Tornado ®

# SO-1

## Side opening

The **Tornado SO-1** is a side-opening extraction hood.

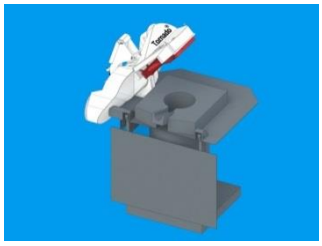
The opening movement is facilitated via a pivot linkage and a hydraulic cylinder.

The piping connection is aligned with the furnace pivot axis.

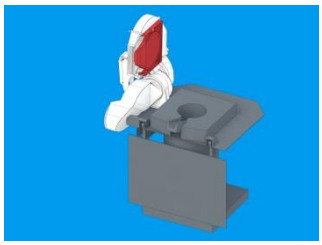
For this purpose, it may be necessary to create cutout into the furnace platform.

- **Swivels to the side (one swiveling axis)**
- **Applicable for induction crucible furnaces of all sizes**
- **Connects to the exhaust pipe in the swiveling axis of the furnace**

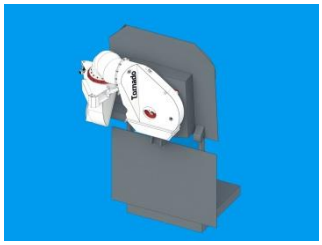
Rear view
-Closed



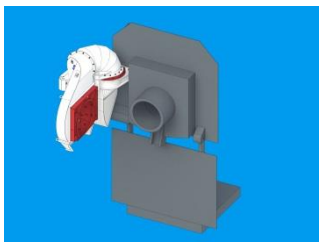
Side opening



Max. side opening



Pouring

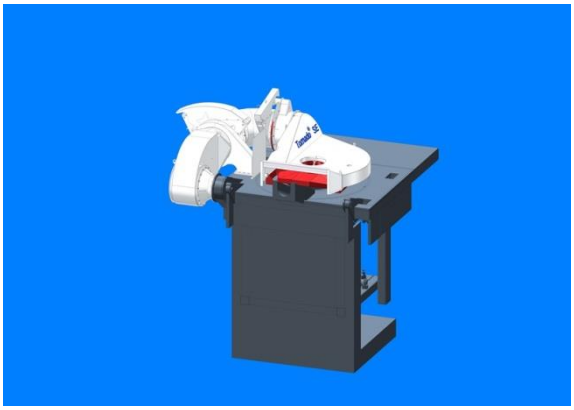


Ejection of the lining

*Extraction Hood*

# Tornado ®

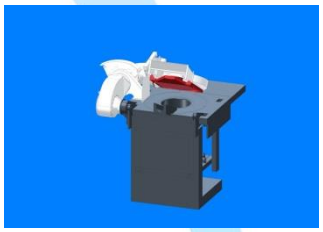
# SO-2-V



Charging

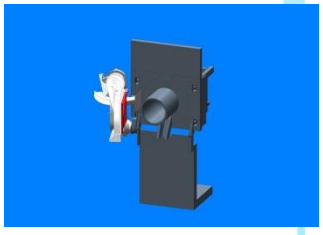
Max. side opening

Max. front side opening



Pouring

Ejection of the lining



**Side and front opening**

The **Tornado SO-2-V** can both open laterally and at the front.

The pivot movement is facilitated via a mechanism attached to the duct and two hydraulic cylinders.

The piping connection is in line with the furnace pivot axis.

For this purpose, it may be necessary to create a cutout into the furnace platform.

- **Suitable for crucible induction furnaces of all sizes**
- **Swivels to the side and to the front side (two swiveling axis)**
- **The piping connection aligns to the furnace pivot axis or externally**

*Extraction Hood*

# Tornado ®

# SO-2-H

**Side and rear opening**

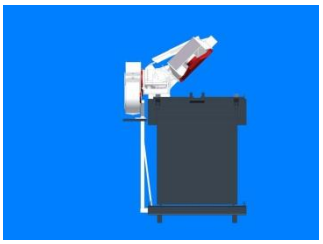
The **Tornado-SO 2 H** can open both laterally as well as in the rear.

The pivotal movement takes place via kinematics and two hydraulic cylinders attached to the duct.

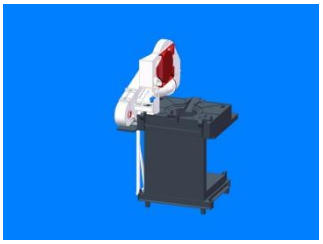
The piping connection is aligned with the furnace pivot axis.

For this purpose, it may be necessary to create a cutout into the furnace platform.

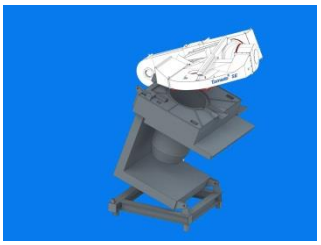
- **Suitable for crucible induction furnaces of all sizes**
- **Swivels to the side and to the rear side (two swiveling axis)**
- **With telescopic duct**
- **Fume extraction during de-slagging**
- **The piping connection can be made in the furnace pivot axis or externally**



Charging

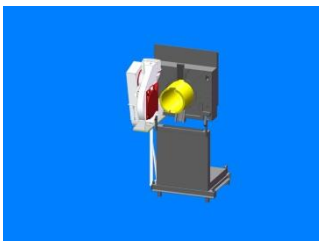


Max. side opening



Max. rear side opening

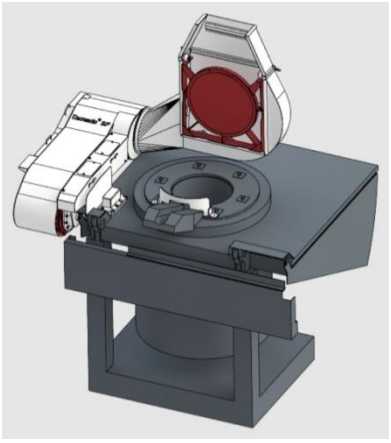
Pouring



Ejection of the lining

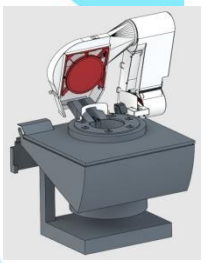
*Extraction Hood*

# Tornado ® SF

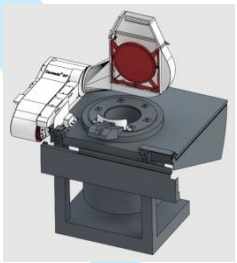


Charging

Max. rear side opening



Max. front side opening



Pouring

Ejection of the lining

**Extra flat for use with very small ladles**

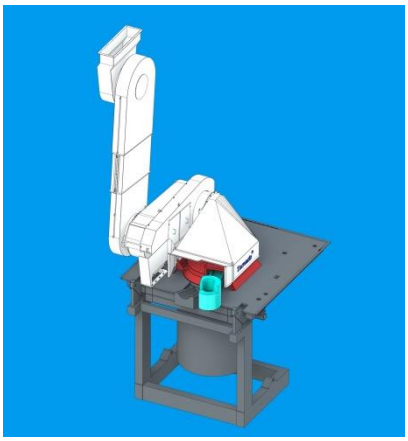
The **Tornado SF** is designed for situations where an extremely flat design is required.

This scenario arises, for example, when very small ladles, suspended from a crane, are being poured in relation to the furnace.

Thanks to the extra flat hood-design, the **Tornado SF** allows for space for the crane rope, ensuring that the furnace can be completely emptied without the ladle being pushed away, even under theses challenging conditions.

It is suitable for furnaces with small to medium crucible diameters.

- **Double swiveling (front- and rear)**
- **Applicable for crucible induction furnaces of all sizes, especially for furnaces with back-tilt function**
- **Flat construction design allows much more space for the crane rope**
- **Piping connection can be made in the furnace pivot axis**



*Extraction Hood*

# Tornado ®

# SE

**'Special Edition' - Tornado hoods**

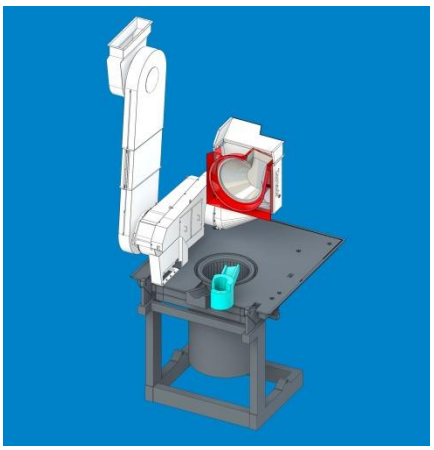
The **Tornado SE** is specially developed and constructed according to the space, furnace type and environmental requirements.

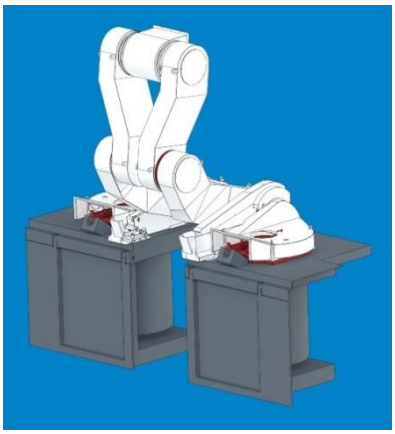
It is a customized, one-of-a-kind piece tailored to the customers specifications.

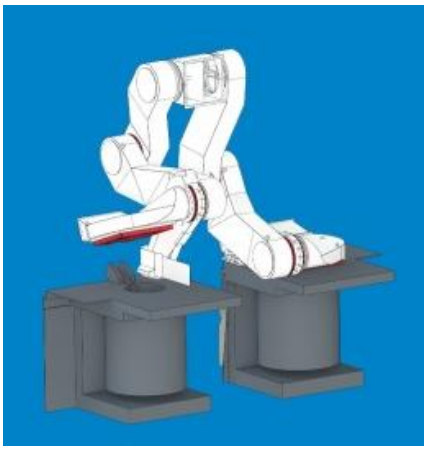
Benefit from our extensive experience in design and development!

- **All types of ‚Special Edition' Tornado hoods**
- **Suitable for crucible induction furnaces of all sizes, especially for furnaces with back-tilt function**
- **The piping connection can be made in the furnace pivot axis or externally**
- **Custom designed and unique!**

***Visit our website, we look forward to your inquiry!***

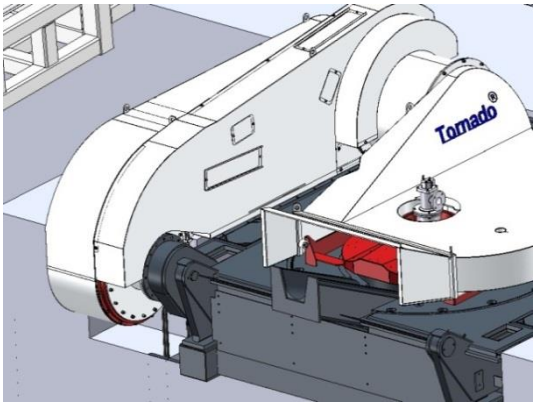


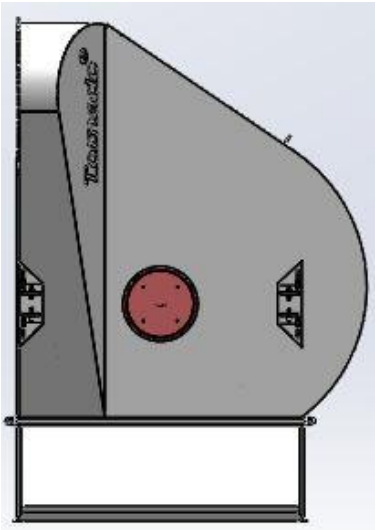




**Optional equipment for Tornado Hoods**

# *Insert fixture for a gas burner in the furnace cover*

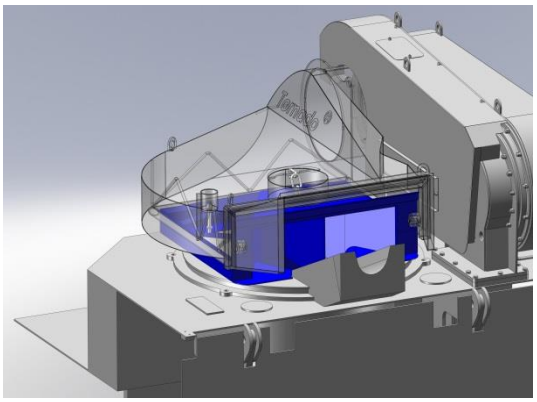


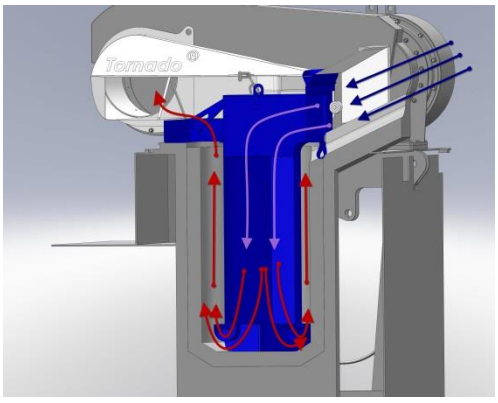



A distinctive feature of the Tornado hood is the direct access to the crucible through the furnace cover. This can be provided with an opening. The opening serves, for example, to accommodate a gas burner. The furnace can then be pre-heated or kept warm with a gas burner while the hood is closed. Additionally, direct access can be utilized for magnesium treatment in the furnace, sample extraction, or the addition of metal shavings.

**Optional equipment for Tornado Hoods**

# *Cooling device*

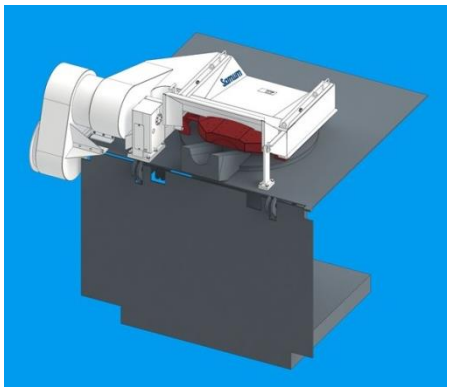





The cooling device facilitates a more uniform and faster cooling of the crucible lining by using the furnace extraction system. The device is inserted into the furnace and connected to the hood. Cooler ambient air is drawn in through the front opening and channeled downward through the central duct. From there, it flows up along the crucible wall towards the hood. This process cools the crucible lining while simultaneously extracting warm air from the furnace.

*Other extraction Hoods*

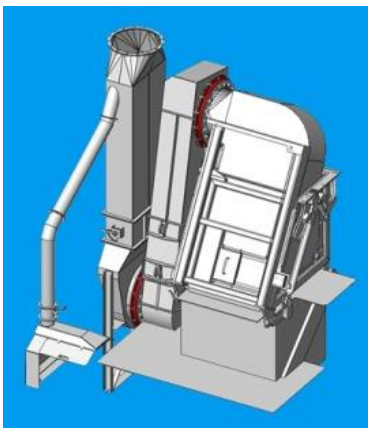
## *Samum* ®

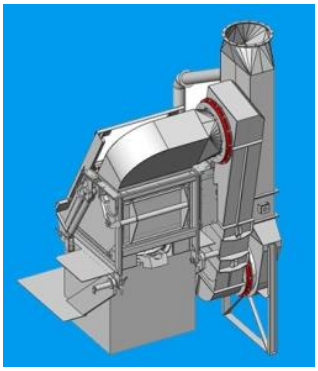


The ***Samum*® hood** is a single-pivot hood with a hydraulic cylinder. It is available in either a side-opening or a rear-opening design. ***Samum*®** hoods are equipped with a quick coupling system, allowing for easy and rapid removal from the furnace in just a few steps. This feature is particularly useful for the rear opening ***Samum*®** hood, in order to eject the lining.

*Other extraction Hoods*

## *Hegoa* ®

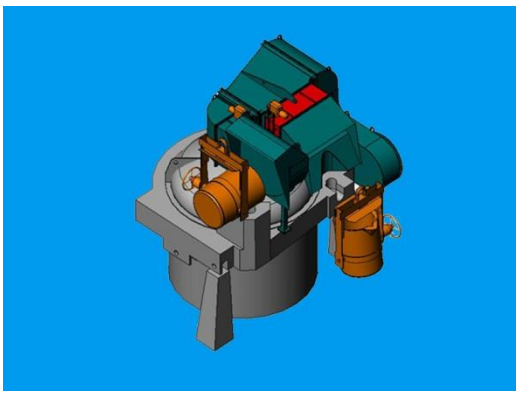


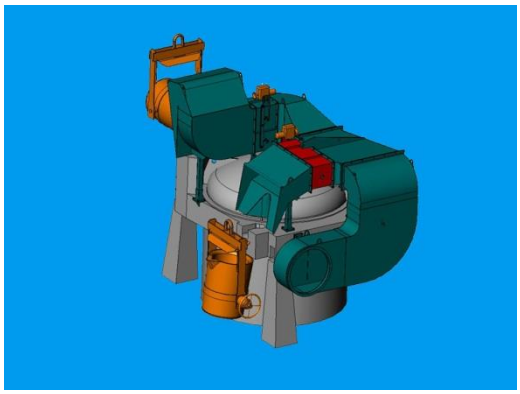


The **Hegoa® hood** has a closed design for capturing extremely 'critical' fumes. It is hydraulically operated with the ability to pivot forward and backward. A vertically lifting elevator door at the rear provides direct access to the crucible, for example, during charging. This door includes an integrated inspection port, which can be manually opened using a sliding mechanism. The front door opens during pouring to capture flue gases from the ladle.

*Other extraction Hoods*

## Belat ®

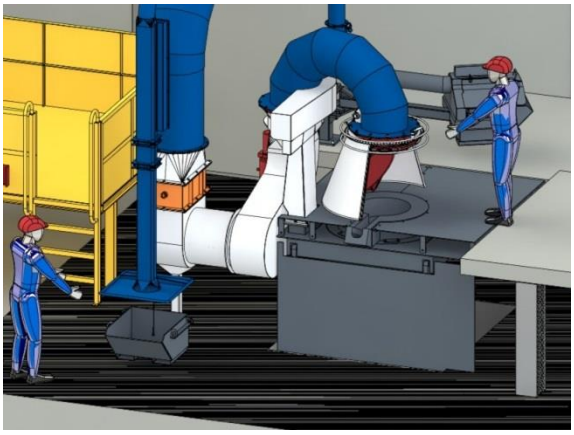


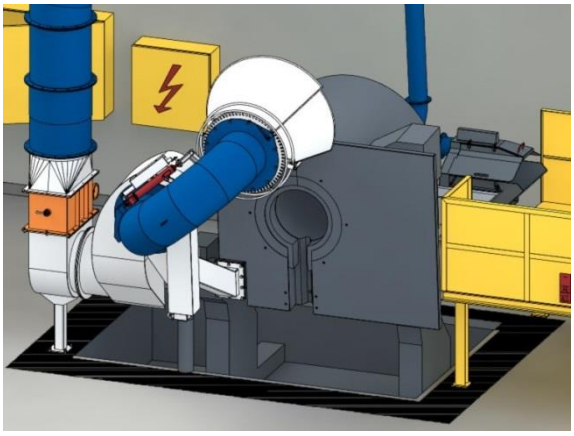


The **Belat hood®** is used to capture the fumes from castings and discharges (snouts) of holding furnaces. The extraction volume is controlled via an integrated motorized valve. If necessary, the hood can be easily removed, for example, for maintenance work on the furnace.

*Other extraction Hoods*

## Pivot hood ®

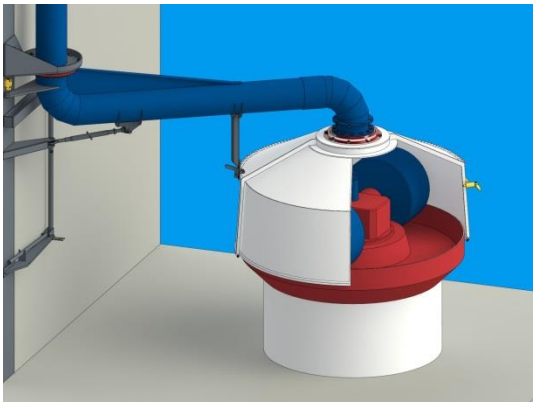


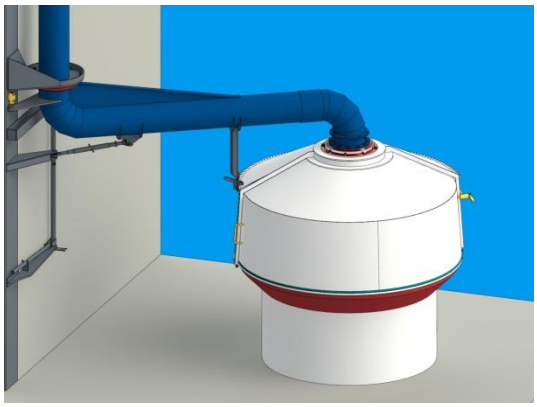


The rotating **Pivot hood®** is primarily used for sample extraction. It captures fumes during all operating phases and allows easy access to the furnace, especially for scraping the crucible after casting. The hood is manually opened by sliding the shell plates against each other. A hydraulic system allows the hood to swivel backwards, while the integrated furnace lid is also operated hydraulically.

*Extraction Hood*

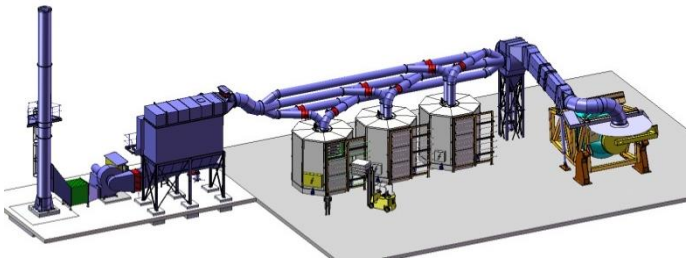
# Extraction hood for an edge runner

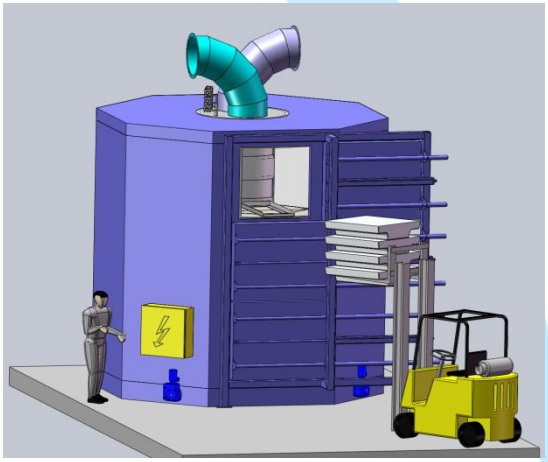


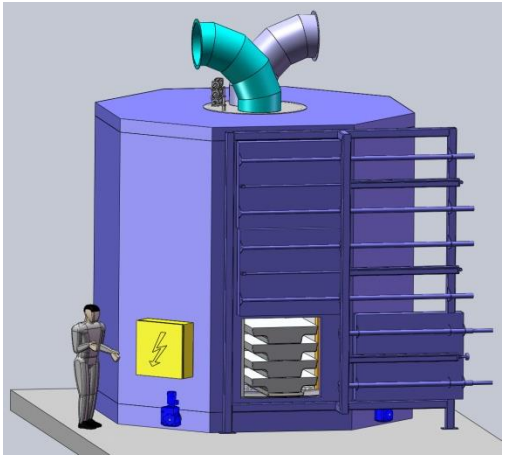


The hood fully covers the area in which the runners move and captures dust generated during the crushing process. To open the hood, for example, when filling the ladle mill, the shell plates of the hood are slid against each other. For even better access, such as for maintenance work, the hood can be fully opened and swiveled to the side.

# IBO - Dry- Carousel





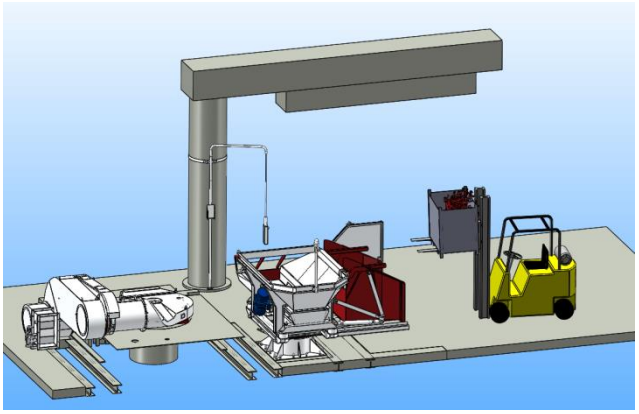


In the drying carousel, clean materials such as aluminum blocks or ingots are preheated and dried. The hot air is generated using the furnace exhaust before it enters the filter.

This process offers two advantages: the material is preheated and dry, and the exhaust air is cooled before reaching the filter.

The carousel ensures that the material remains dry. During loading and unloading of the carousel, the open chamber is isolated from the heat circuit, so only that specific chamber cools down. Furthermore, the carousel ensures that the materials are processed in the correct sequence.

- **Simple and safe operation**
- **Ensures preheated and dry material**
- **No risk of mix-ups**
- **Optimum utilization of furnace exhaust air**



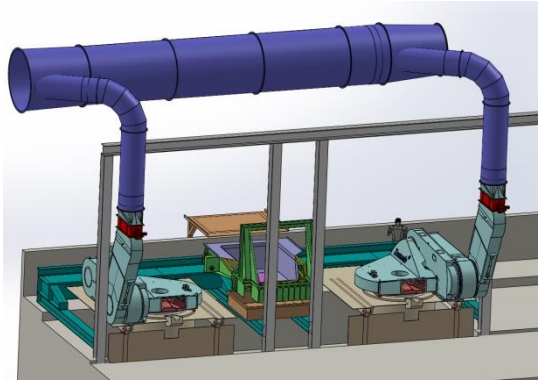
# IBO -

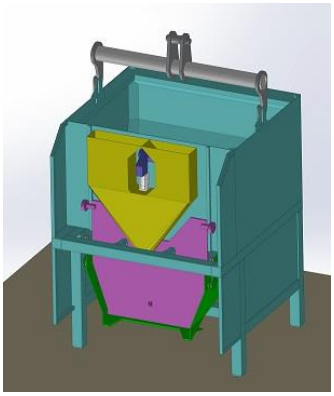
# Charging solutions

The **IBO charging solutions** have been specially developed and designed for use with the **Tornado hoods**. They enable efficient fume capture during the charging process, as they operate beneath the open hood!

The charging equipment can be used with two parallel furnaces. Depending on the access, the charging unit can be loaded either from the side or the rear.

Alternatively, we also offer charging buckets, which can be transported to the furnace using equipment such as the monorail crane.

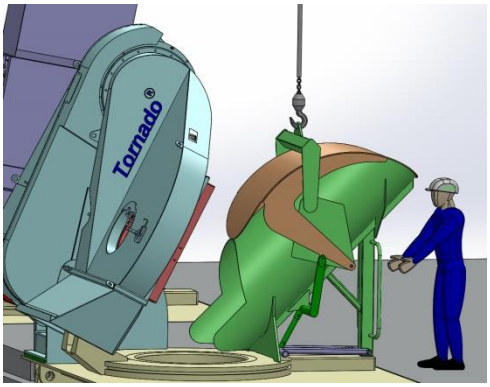




***Looking for additional charging solutions?***

***Visit our homepage and send us your inquiry!***

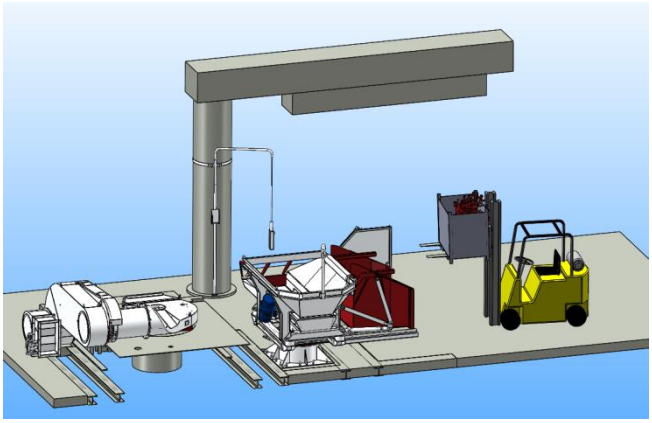
***We would be happy to develop a customized solution in close collaboration with you!***

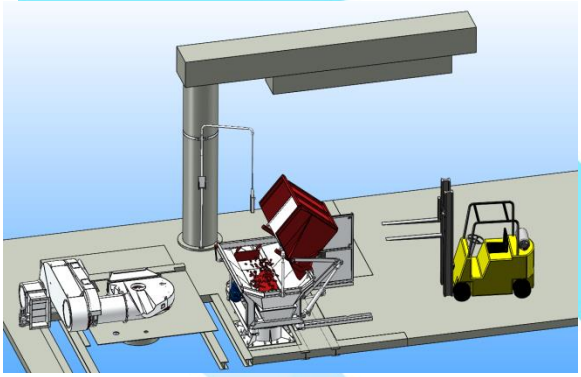


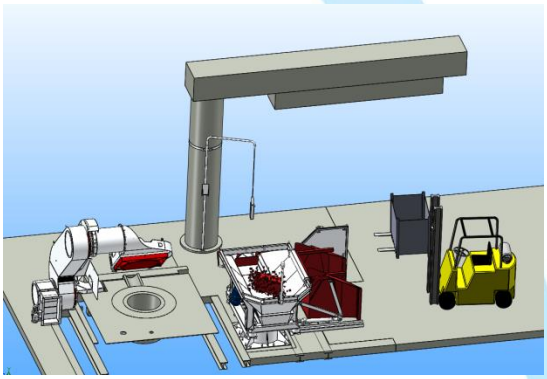
# IBO -

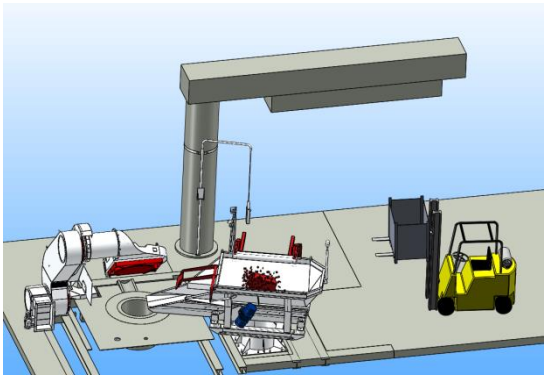
# Charging device

***Suitable for two parallel erected stoves, rotatable***







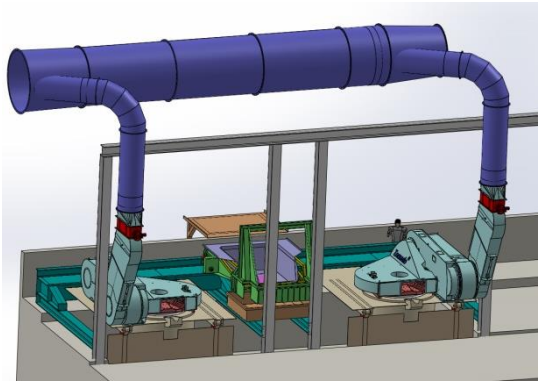


The charging device has been specially developed and designed for use with the Tornado hood. It enables the efficient fume capture during charging process, as the charging device operates beneath the open hood.

The charging device is mounted on a rotating platform and can be used for charging two parallel furnaces of the same size.

A control panel allows the operator to pivot the charging device from the park position (for loading and unloading scrap) into the unloading position, ensuring the operator remains at a safe distance from the furnace and the charging device.

- **Easy and safe operation**
- **Usable for two furnaces**
- **Independent of the overhead monorail crane**



# IBO -

# Charging device

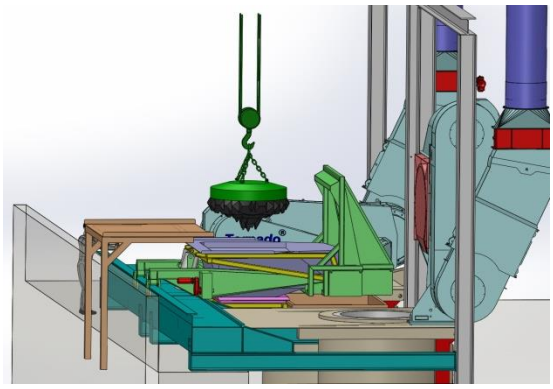
***Suitable for two parallel erected stoves, movable***

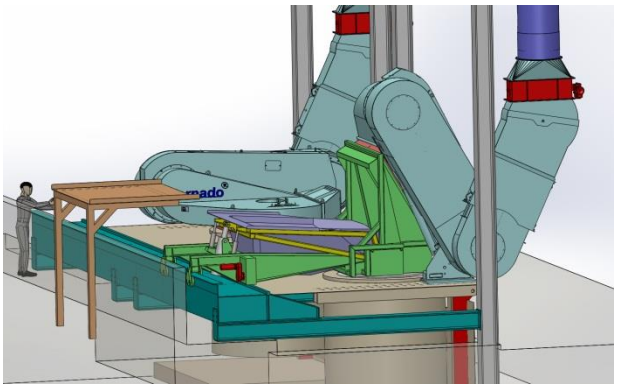
The charging device has been specially developed for use with the Tornado hood. It enables the efficient capture of fumes during charging, since the charging device operates under the open hood.

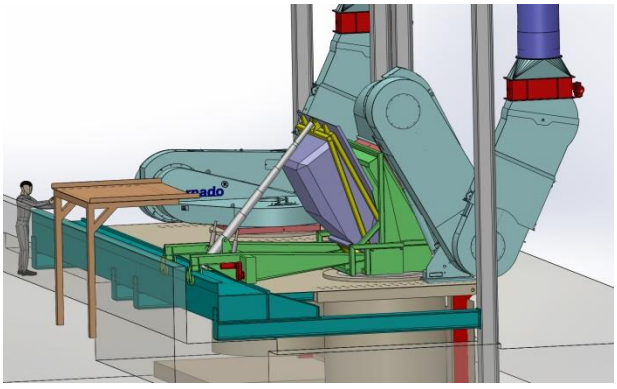
The charging device is linearly guided and can be moved both laterally as well as forward and backward. Furthermore, it can be used for the charging of linearly arranged furnaces of the same size.

The charging device can be pivoted from the parked position and via a dedicated control to the unloading position (for loading and unloading of scrap). The operator remains at a safe distance from the furnace or charging device.

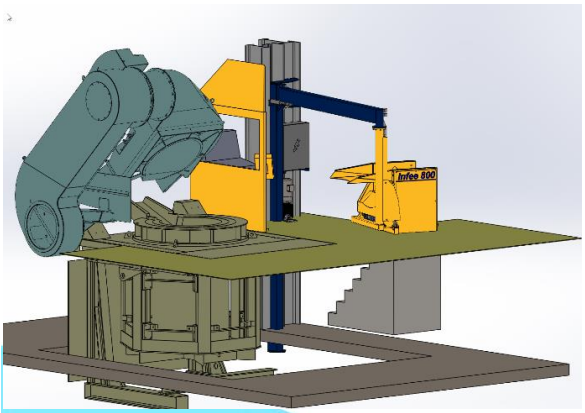
- **Correct and safe use**
- **Suitable for two furnaces**
- **Independent of the overhead monorail crane**



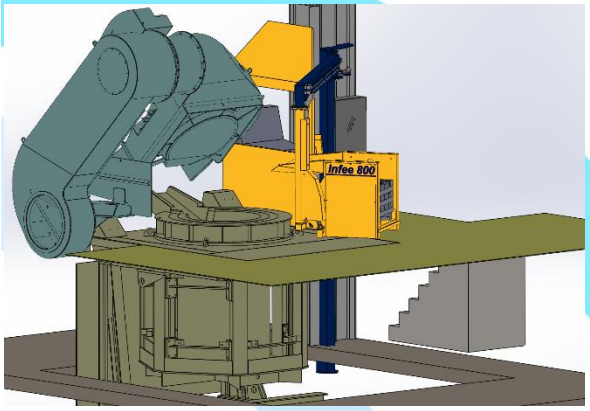




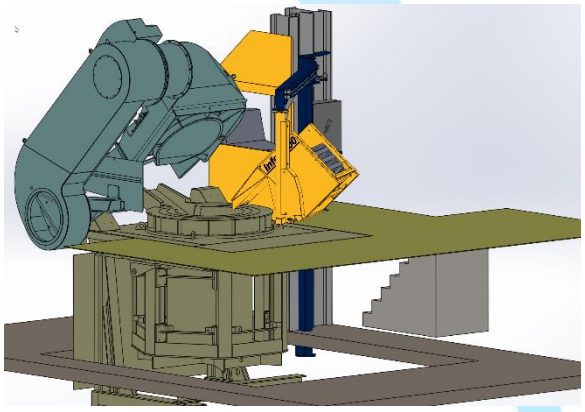
**Transfer position**



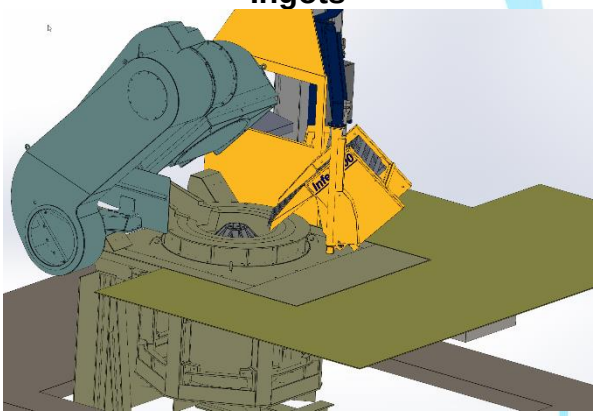
**Pivoted over the furnace**



**Tilted at 45°**



**Charging with Individual Dispensing of Ingots**



# *IBO –*

# *Infee*

# *Ingots-Chargiergerät*

The **IBO Infee Ingots Charging Device** is a specialized charging unit designed for the loading of ingots, equipped with a forklift for the individual delivery into the respective furnace

The **Infee** can be securely fixed to the existing building structure according to customer specifications. Using the control panel, the Infee can be automatically pivoted from the transfer position (for loading) toward the furnace. It can be tilted by 45°, allowing for the controlled unloading of all loaded ingots via a chute, without transferring any burdensome loads onto the furnace and its sensitive measurement systems. This contributes to maximizing process safety and productivity.

The operator stands in a secure control position, with a clear view of the furnace and the charging process. From this location, he can safely and conveniently execute and monitor all operations using a single control element.

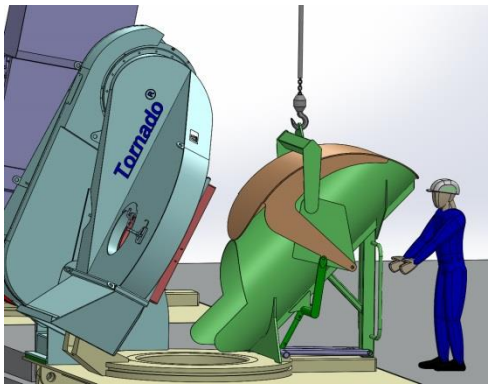
- **Easy and safe operation from outside the furnace work-area**
- **Customizable and adaptable to customer requirements**
- **Improved visibility and maximum control during charging**
- **Increased process safety**
- **Prevention of furnace damage**
- **No distortion of furnace weight measurement**

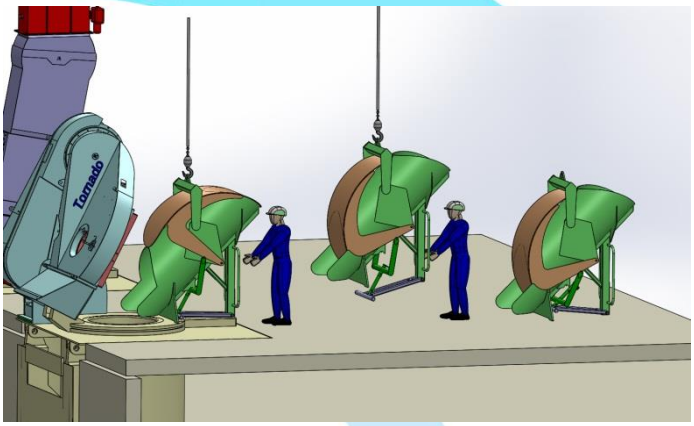
# IBO -

# Charging bucket

***with simple kinematics***

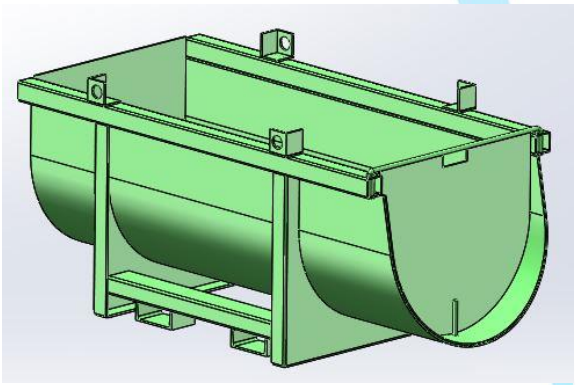
***and the charging tray***



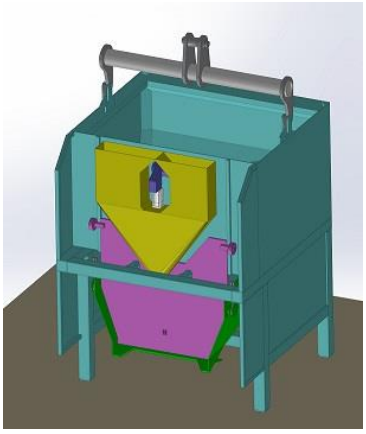

The charging bucket with simple kinematics is suitable for charging with a monorail crane.

After filling, on a frame, the bucket can be transported to the furnace using the monorail crane at the furnace. When positioning at the furnace, the swing flap at the bottom opens, and closes below the top, allowing optimal fume extraction. For storage, the bucket can simply be set down. To prevent the wing flap from opening, it is secured with a bolt.



The charging tray is designed for hand charging in small quantities and is the most cost-effective option.

Here, too, fume extraction occurs during charging.
After placing the tray in front of the furnace, the front hooks must be released and then raised, and subsequently, the rear part as well.
By angling the tray, the flow rate and speed of the material can be regulated.
The advantage of this option, as with other charging buckets, is the smooth filling of the crucible. This results in fewer splashes and prevents pressure buildup in the crucible.



Solutions in the foundry

# IBO -

# Charging bucket

***With sprung floor***

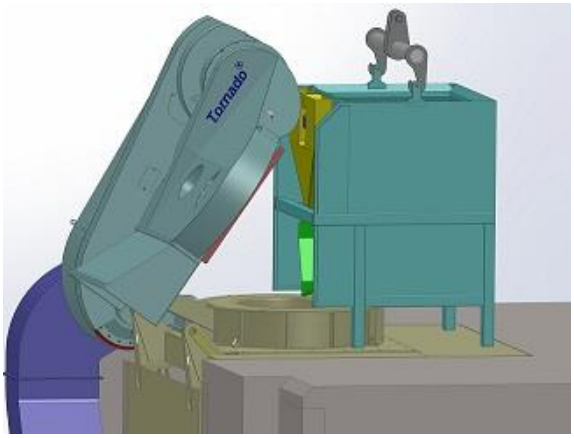
The charging bucket with a swinging bottom is suitable for large quantities and is filled using a magnet.

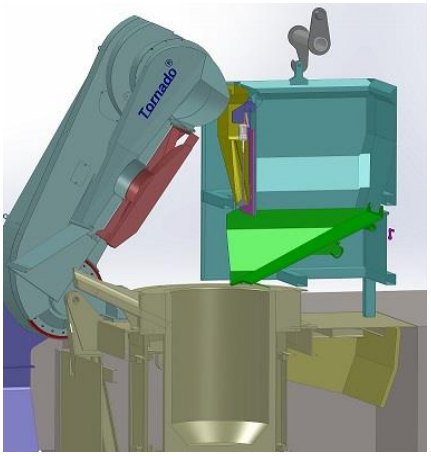
After positioning the charging bucket, the plate opens with the by a motor. Via the shakers mounted on the bottom, the material can slide into the crucible.

This charging bucket features a separate chamber that can be opened with a cylinder, allowing additional materials to be added directly as needed.

All charging buckets offer the following advantages:

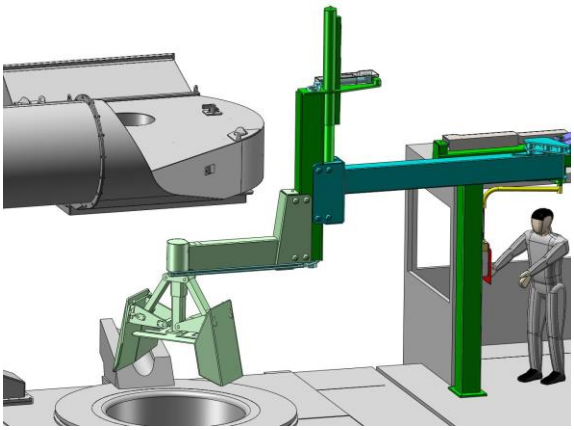
- **Easy and safe operation**
- **Usable for multiple furnaces**
- **The scrap slides into the furnace (causing less spatter and does not trap air inside the furnace)**
- **Optimum extraction during charging**

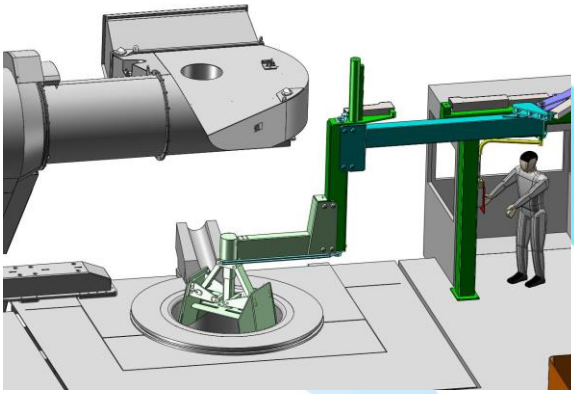


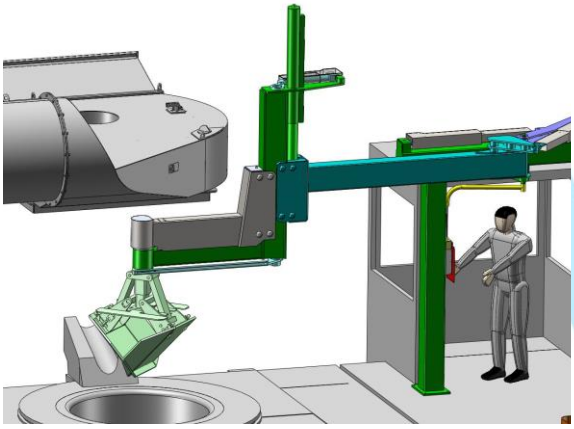



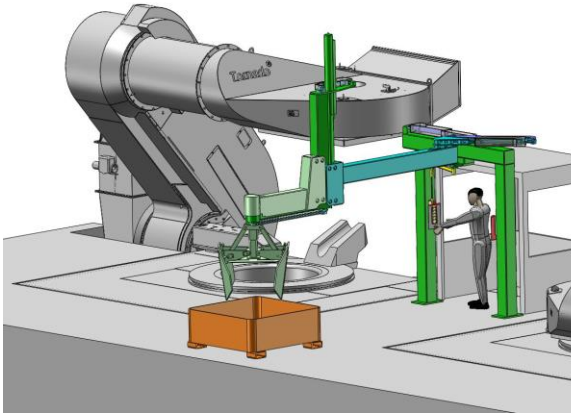
# IBO -

# Slag grabber









The **IBO -slag grabber** is specifically designed for use with the Tornado hood. It enables the efficient capture of flue gases during slag removal, as the slag grabber operates beneath the opened hood.

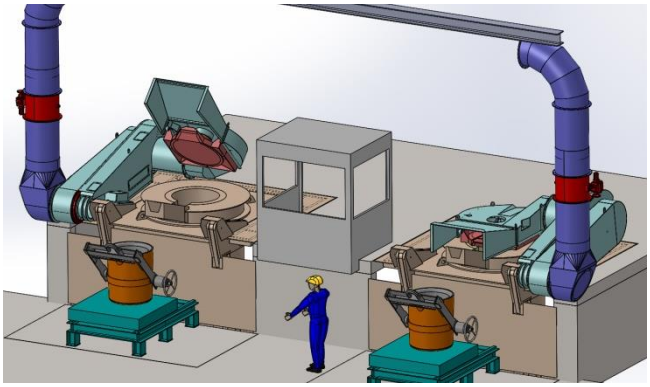
The slag grabber can be mounted on a frame between two parallel furnaces of the same size, allowing for efficient slag removal from both.

It is hydraulically operated and can be configured to swing either to deposit slag in front of the furnaces or to the rear.

The operation of the **IBO -slag grabber** is controlled from the operator's station via a control panel, ensuring the operator remains at a safe distance from both the furnace and the slag grabber.

The Tornado hood can be positioned in a close distance to the slag grabber respectively the bath surface while de-slagging, for an efficient extraction of the fumes while de-slagging

- **Easy and safe operation from the operator`s station, the slag grabber does not require any manual handling**
- **Usable for two furnaces**
- **Hydraulically operated**
- **Independent of the overhead crane**

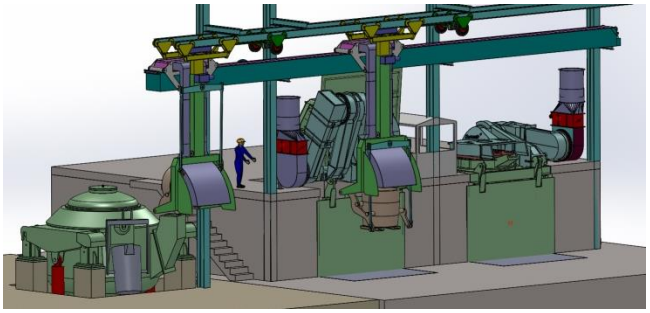


# IBO -

# Ladle Transport Solutions

**IBO -ladle transport solutions** are specifically designed for the use with Tornado hoods. They enable efficient capture of flue gases during pouring and prevent cooling during ladle transport.

These ladle transport solutions can be utilized with multiple furnaces.



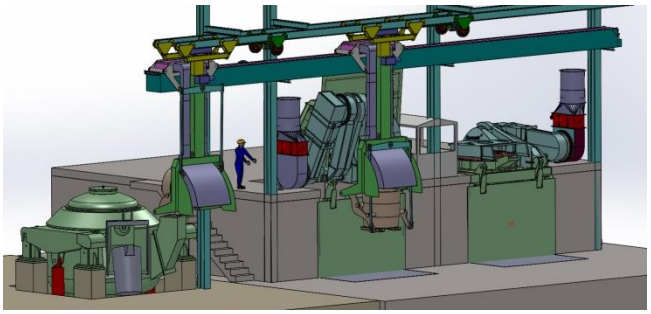
***Looking for additional ladle transport solutions?***

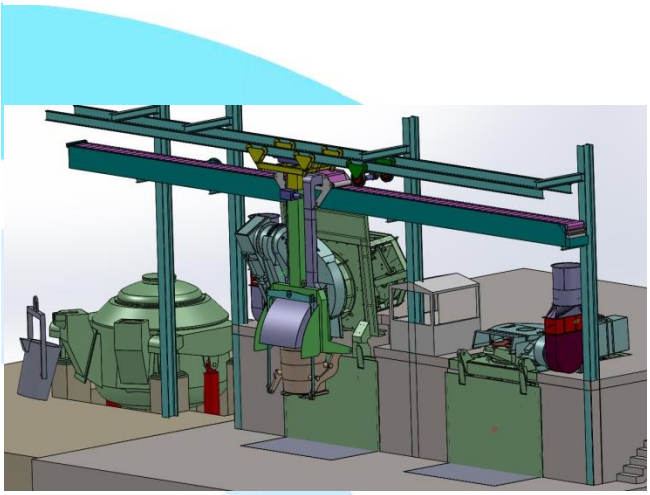
***Visit our homepage and send us an inquiry!***

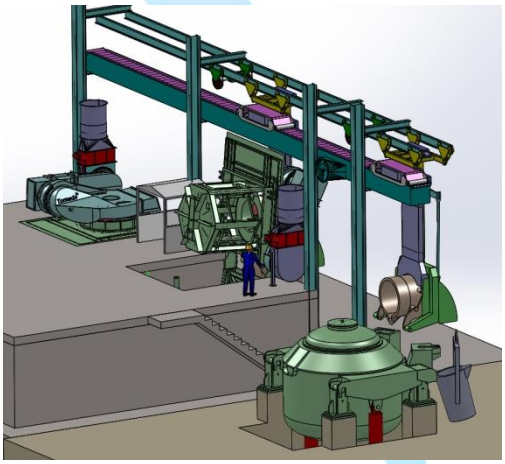
***We would be happy to work in close cooperation with you to develop the optimal solution for you!***

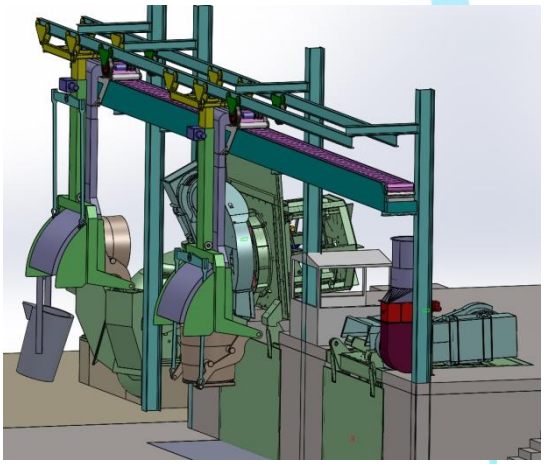
# IBO -

# Crane extraction







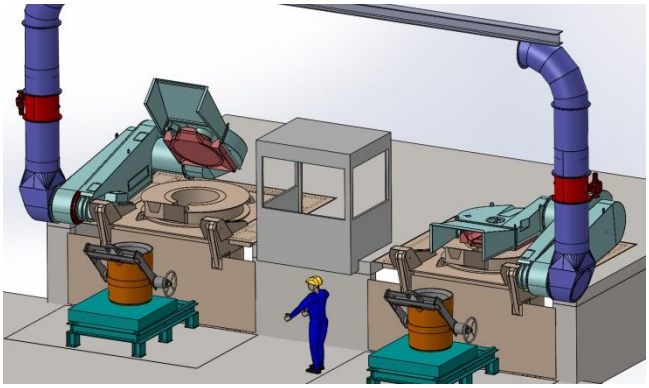


IBO crane extraction system is specifically designed for use with the Tornado hood. It enables efficient capture of fumes during pouring, as it extracts directly at the ladle.

The crane extraction system is mounted on a frame in front of the furnaces and can move between the linearly arranged furnaces.

Using a control unit, the ladle can be moved from the parking position to the designated pouring position and to the holding furnace. The operator remains at a safe distance from the furnace and ladle during operation.

- **Simple and safe operation**
- **Suitable for multiple linearly arranged furnaces**



Solutions in the foundry enterprise

# IBO -

# Ladle Transport Cart

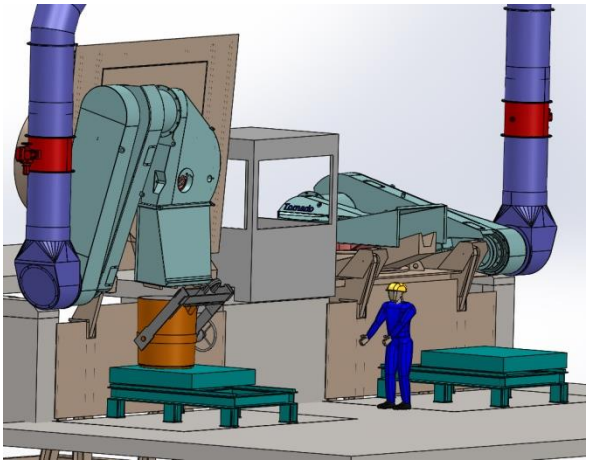
The IBO ladle transfer cart has been specifically developed for use with the Tornado hood. It enables efficient capture of fumes during pouring, as the ladle is moved directly to the furnace.

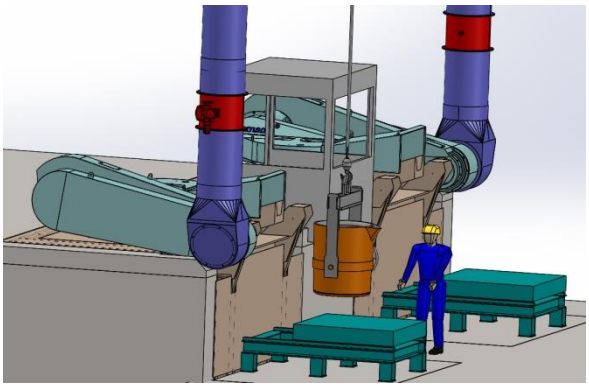
The table consists of a fixed frame and a linearly movable tabletop.

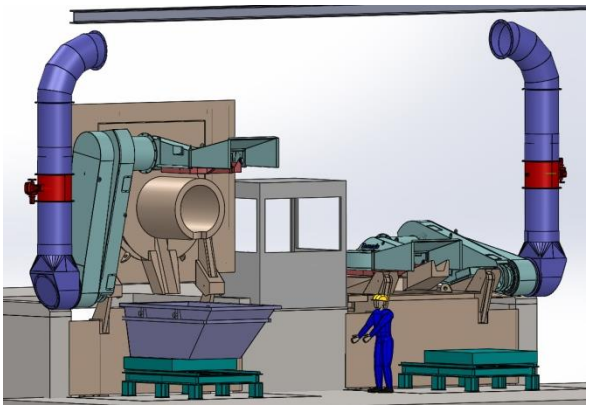
After placing the ladle on the tabletop, the crane is released, allowing the ladle to be transported towards the furnace on the tabletop. After filling, the table retracts and the crane cable is tightened, and the ladle is further transported.

The movement of the tabletop is controlled via a control element, keeping the operator at a safe distance from the furnace and the ladle. For ladle extraction, a container bin can be placed on the table, allowing for easy removal of the ladle.

- **Easy and safe operation**
- **Suitable for multiple linearly arranged furnaces**
- **Can also be executed as a cart**
- **Height adjustable**







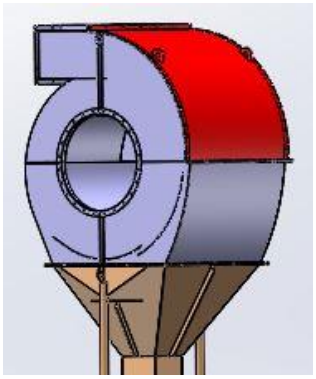
*Air technical equipment*

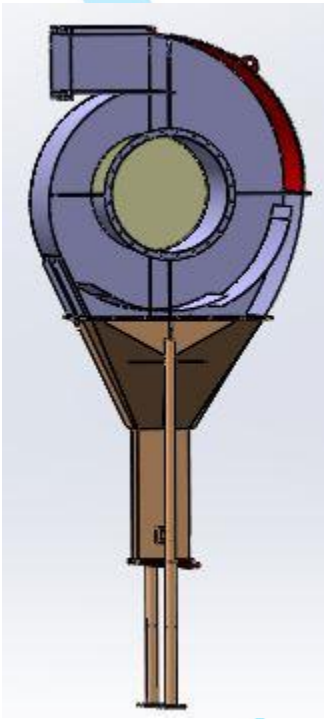
# Piping

The piping system is designed according tot he required air volume. Its arrangement is tailored to the structure oft he existing building. The routing of the piping is aerodynamically optimized to ensure minimal pressure loss and turbulence.
The pipes are made from welded 3 mm sheet metal and are painted on both the exterior and interior.

*Air technical equipment*

# Skimmer

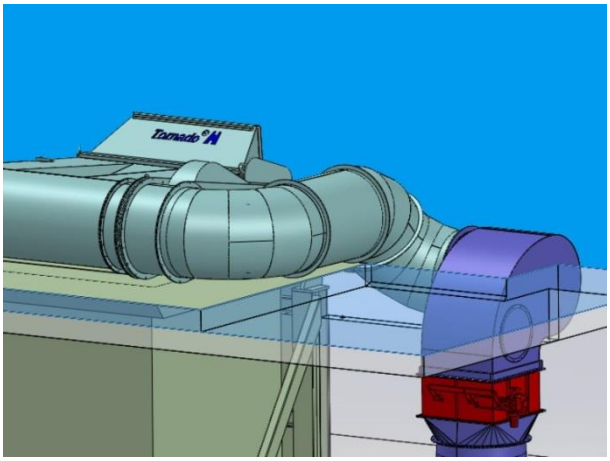


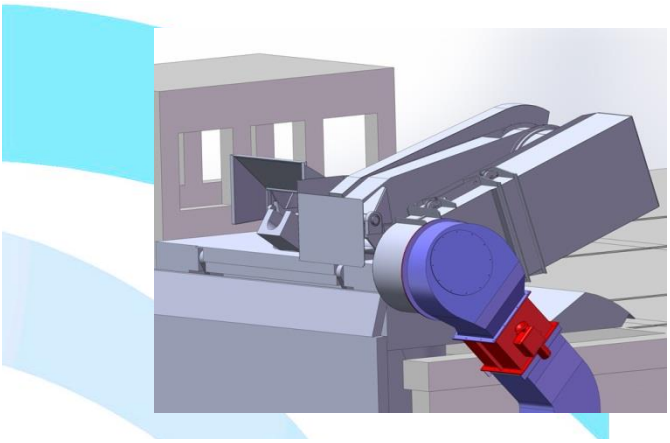


The skimmer is used to separate coarse particles and sparks from the airflow. For this purpose, it is installed in front of the filter in the raw gas pipe. The raw gas enters the skimmer and is directed into a horizontal rotational movement. The heavier particles are carried by gravity outward and strike against the outer wall. From there, they slide downward, where air deflector plates cut off the heavier particle-laden air layer and direct it into the calming area. There, the particles separate and are collected in a container or big bag. The air that has been offset in rotation exits the skimmer via a center-mounted tube. The red wear cover can be removed for maintenance purposes and replaced if necessary.

*Air technical equipment*

# Connection box

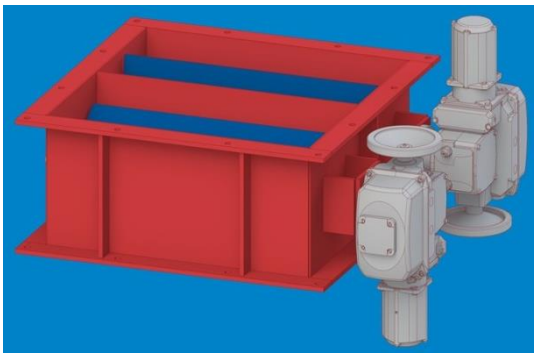




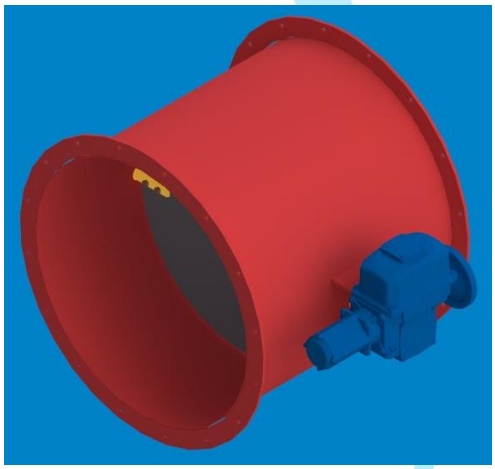
The connection box optimized for airflow, connects the hood to the subsequent exhaust duct. Various designs are available. The junction box is often connected to a throttle valve, then a transition piece, from rectangular to round, and then finally the round raw gas pipe.

*Air technical equipment*

# Dumper valve



- Double dumper valve for 2 furnaces, Rectangular -



- Dumper valve for 1 furnace, round -

The throttle valve regulates the airflow in the raw gas duct. It can be operated electrically or manually and is available in various sizes, available with one or multiple valves, in either round or rectangular shapes. A special flat design is also available when space is limited. The drives are equipped with a potentiometer to signal the position of the valve.

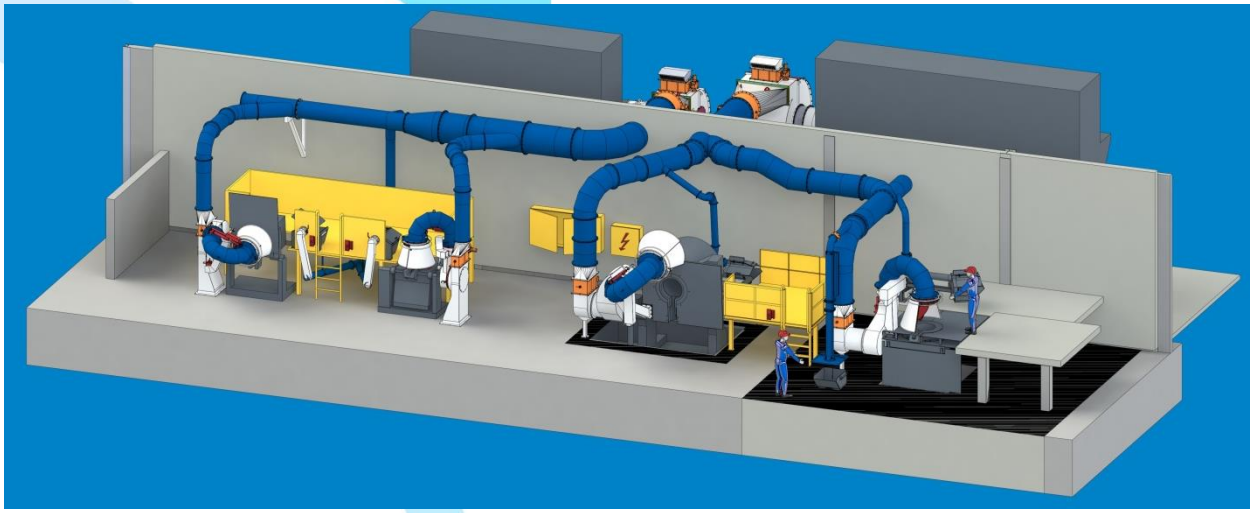
# Exhaust system Planning for foundries / Turn-key-projects

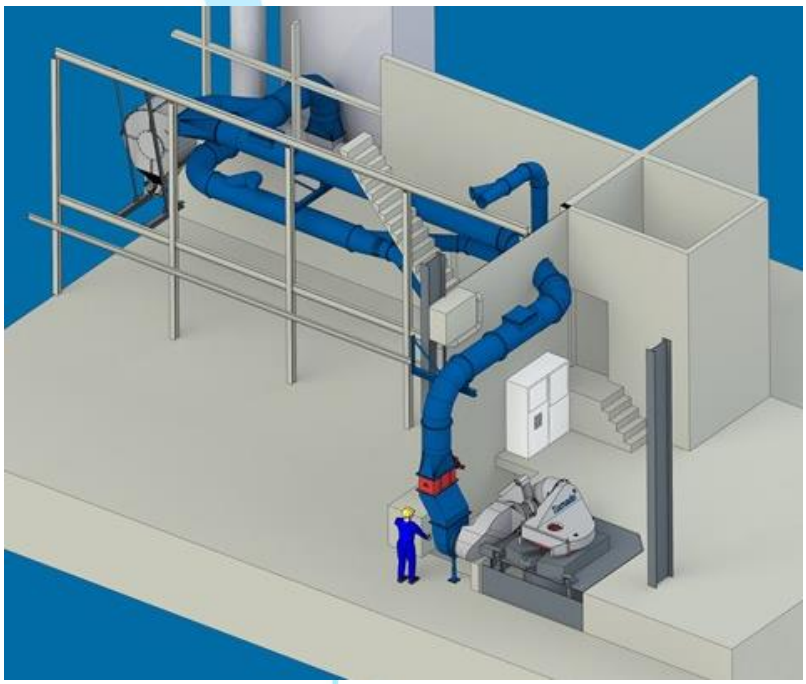
***From planning to start-up from one source***

In close collaboration with our customers, we develop exhaust concepts for entire foundries or specific areas. The design and development is carried out by our experienced engineers using a modern CAD environment. We offer customized, technically optimized, and cost-effective solutions. For implementation, we provide a variety of air-handling components such as exhaust hoods, ductwork, dampers skimmers, etc., all individually designed and constructed according to the individual requirements of the customer. Installation and commissioning are carried out by our experienced specialists, who also offer training, as well as maintenance and repair work.

***Additional comprehensive solutions are available upon request!***

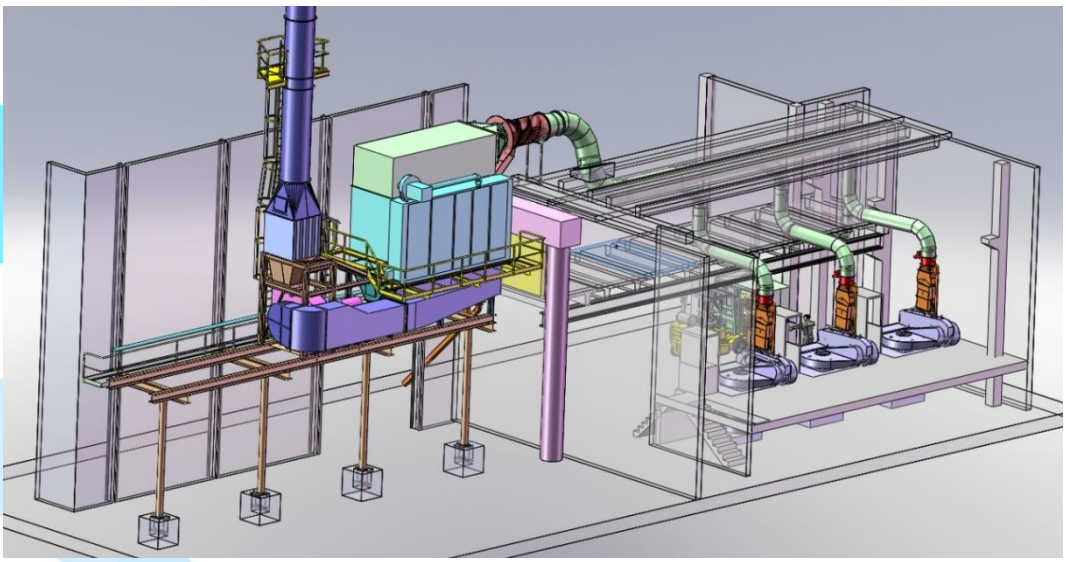
***Feel free to visit us on our website for more information!***

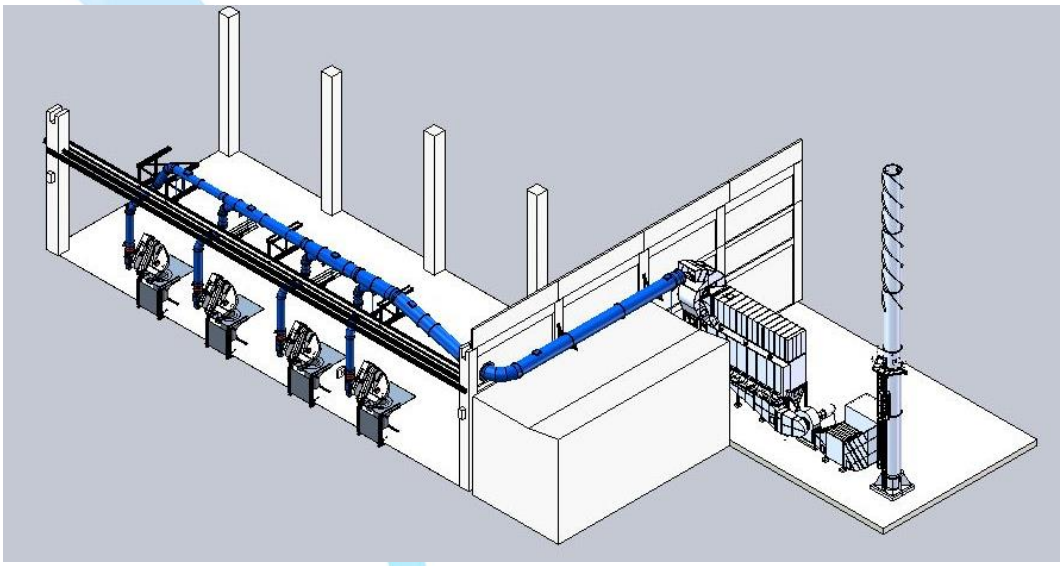


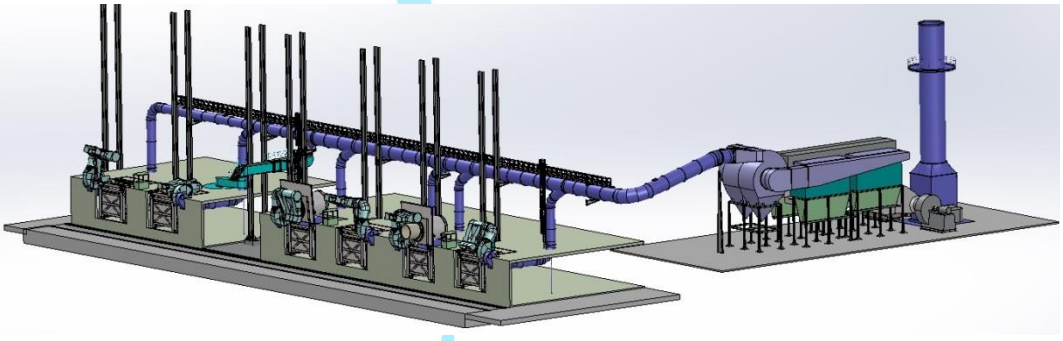


# Exhaust technological planning for foundries /
# -Turn-key-projects

***From planning to start-up***
***from one source***



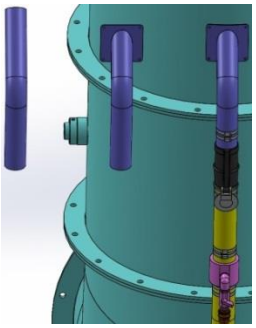


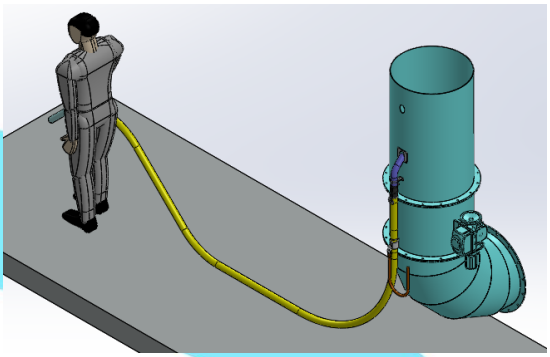


*Special products*

# IBO -

# Vacuum cleaner



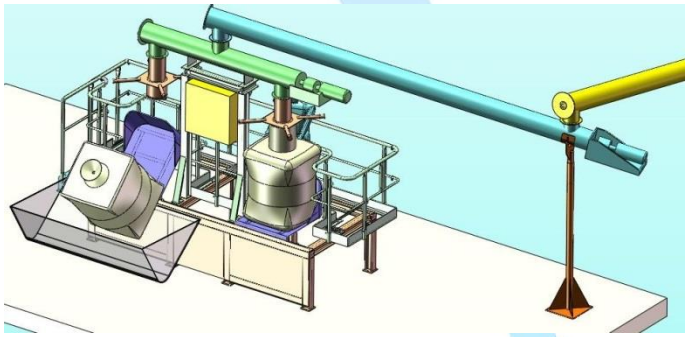


With IBO vacuum cleaner, operated with the compressed air, dust, fine and coarse-grained materials can be sucked away. The dust does not, as is conventionally done, enter a separate container that must eventually be emptied, but rather immediately enters the pipeline of a dedusting system and is filtered there. Even inaccessible places can be effectively cleaned with the flexibility of a vacuum cleaner.

*Special products*

# IBO - Big Bag

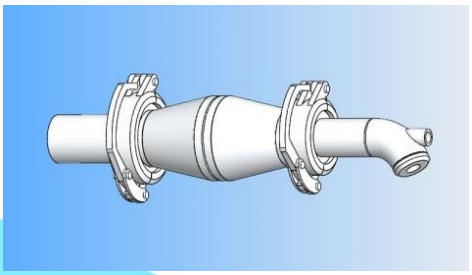
# Filling station



The big bag filling station provides for the clean and easy removal of dust and fine-grained material. The big bags are filled successively in order to avoid any work stoppages due to changing.
For example, a typical application location for one of these dispensaries might be a grinding facility in which dust is collected in silos. The dust can be then be packed in big bags and recycled in a foundry.

*Special Products*

# IBO -Foam lance



The foam lance 'bubble tube' is used to generate large amounts of foam. By utilizing different inserts and various surfactants, the properties of the foam can be adjusted accordingly.

*Special Products*

# IBO -Dump Truck

Wells are used in the hydraulically pivotable tipping device. Emptying is performed safely and at the desired rate and amount.

***Do you have an idea or have been looking for a solution?***
***Do you have ideas for improvement?***
***We are very interested in unresolved issues!***
***Visit our website and give us your ideas, wishes and suggestions!***
***We are more than happy to develop a custom tailored solution in close cooperation with you!***

# Engineering services

***We are your competent partner for development and construction projects!***

To your satisfaction, recommendation, and for our mutual success, our dedicated team develops tested, flexible, and precise solutions tailored to your individual requirements.

**Services:**

- **Conceptualization and Development:**
  Consultation, planning, analysis, and feasibility studies in close collaboration with the client
- **Design and Drafting:**
  Engineering and drawing work in all development phases
- **Manufacturing and Documentation**:
  Comprehensive production and documentation materials
- **3D Graphics and Animations**
  High-quality visualizations and simulations for better understanding

Our customers are active in a wide variety of industries, including:
foundries, filtering technology, tunneling, laboratory equipment, mechanical engineering, automotive, the food industry and many more.

**CAD:**

Our modern CAD workstations are continuously updated and maintained with the most up-to-date hardware and software. For several years, we have been using the 3D software SolidWorks Professional and SolidWorks Premium, along with database systems for drawing management and BOM generation. We can provide manufacturing documentation for 2D drawings in DXF and DWG file formats. For volume models, output is possible in STEP, IGES, and other formats are possible. We can also deliver manufacturing drawings up to DIN A0 in black or color plots.

***Visit our website and let us know what we can do for you today!***

**We are happy to work in close cooperation on a personally tailored solution!**

IBO filter systems provide optimal cleaning of exhaust air, either at a particular location or in outdoor applications.

The stationary filter systems are not only used for fume extraction from furnaces, but also across all industrial sectors in which exhaust air treatment is required.

The mobile filters have been specially developed for fast and easy transport. After a very short assembly time, they are ready to use.

The compact filter is optimally equipped for the high demands of daily use in its container dimensions, equipped with an innovative flushing technology.

The efficient treatment of exhaust air, the durability of our systems, its ease of use, combined with the unique dual flush is of the highest quality.

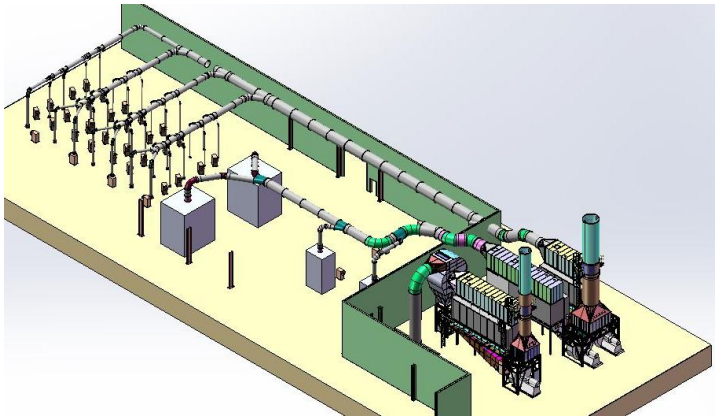
IBO filter systems are suitable for new installations. Due to their adaptive designs, they are also ideal for retrofitting. This ensures that the best solution can always be provided in accordance with individual customer requirements.

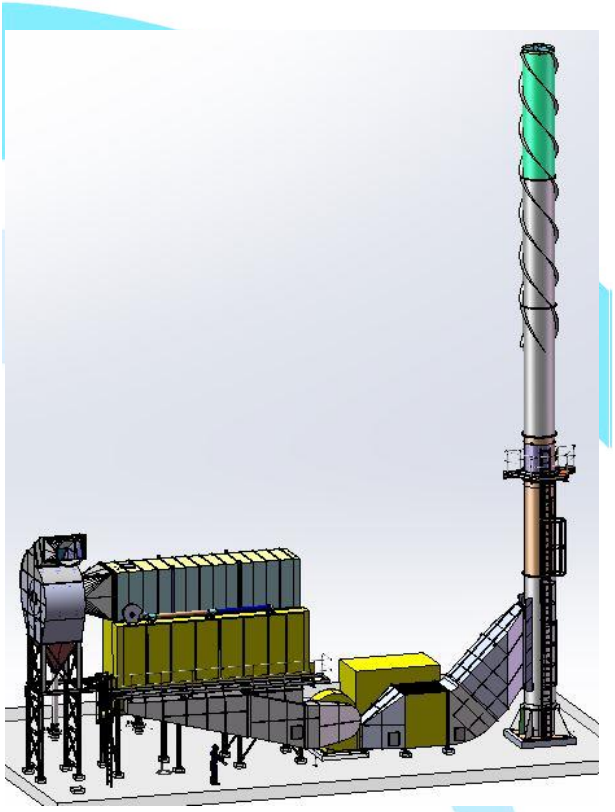
Discover the variety of possibilities!

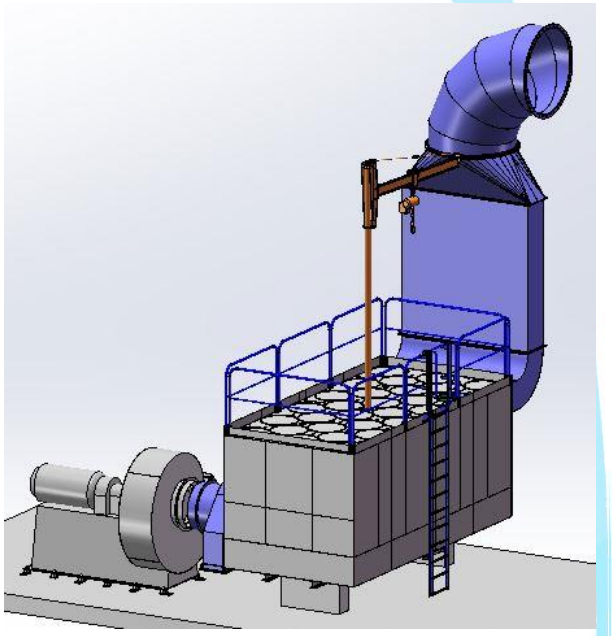
IBO
Ingenieur-Büro-Ohnemus

*Filter Systems*

# Stationary Filter







The SF can be used everywhere where exhaust air needs to be cleaned, whether in a foundry, a cleaning station, or any other facility.

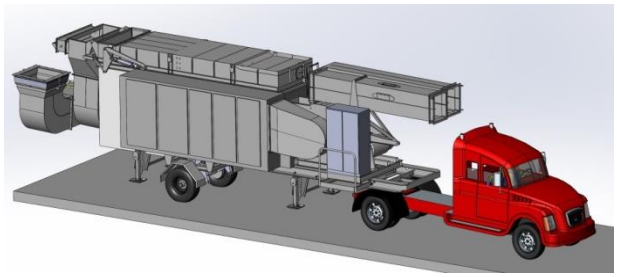
After a one-time installation, the SF can be put into operation. Periodic inspections should be conducted, which can be carried out by trained personnel or by our team.

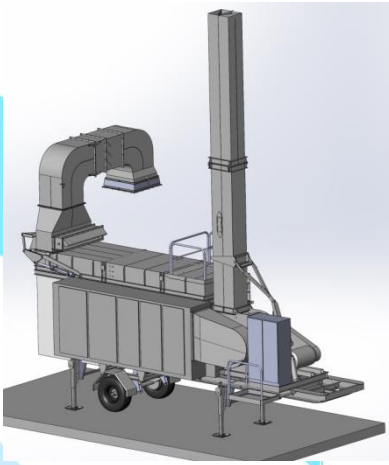
Our modular design allows for customized implementation to meet our clients needs.

- **Custom Implementation:**
  Tailored solutions to fit the specific requirements
- **Versatile Applications:**
  Suitable for various environments
- **Activated Carbon Fibers:**
  Options available for enhanced filtration

*Filter Systems*

# Mobile Filter



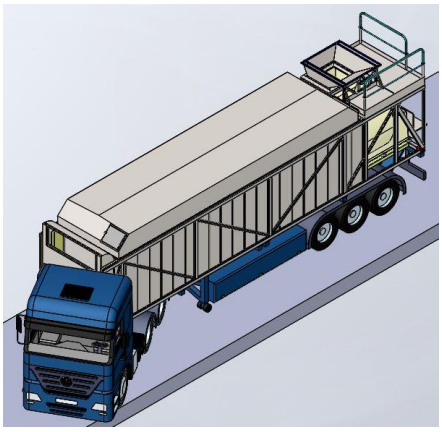


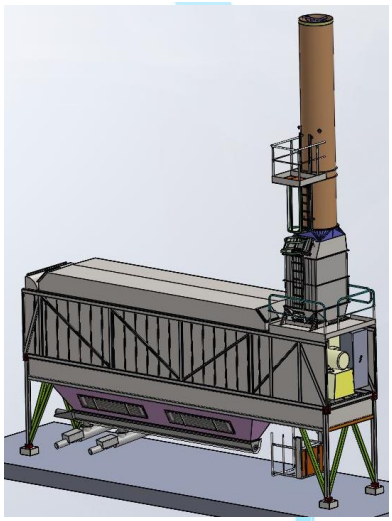
The MF is a mobile filter that can be used wherever it is needed.
Due to its size and shape, it can easily be transported by truck. The MFA should only be opened up and connected on site. It is then immediately ready for operation.

- **Mobile**
- **Ready for immediate use**
- **Easy and fast installation**

*Filter Systems*

# Compact-Filter Orchis





The CFO is a compact filter designed to the dimensions of a standard 40-foot container.
It can be easily transported on a truck and set up quickly and simply on-site.
After assembly and a test run, it is immediately ready for operation.

- **40' Container external Dimension** (2.591 x 12.192 x 2.438 m)
- **Cost-effective transport solution**
- **Short installation times**
- **Quick implementation**
- **Requires little space**