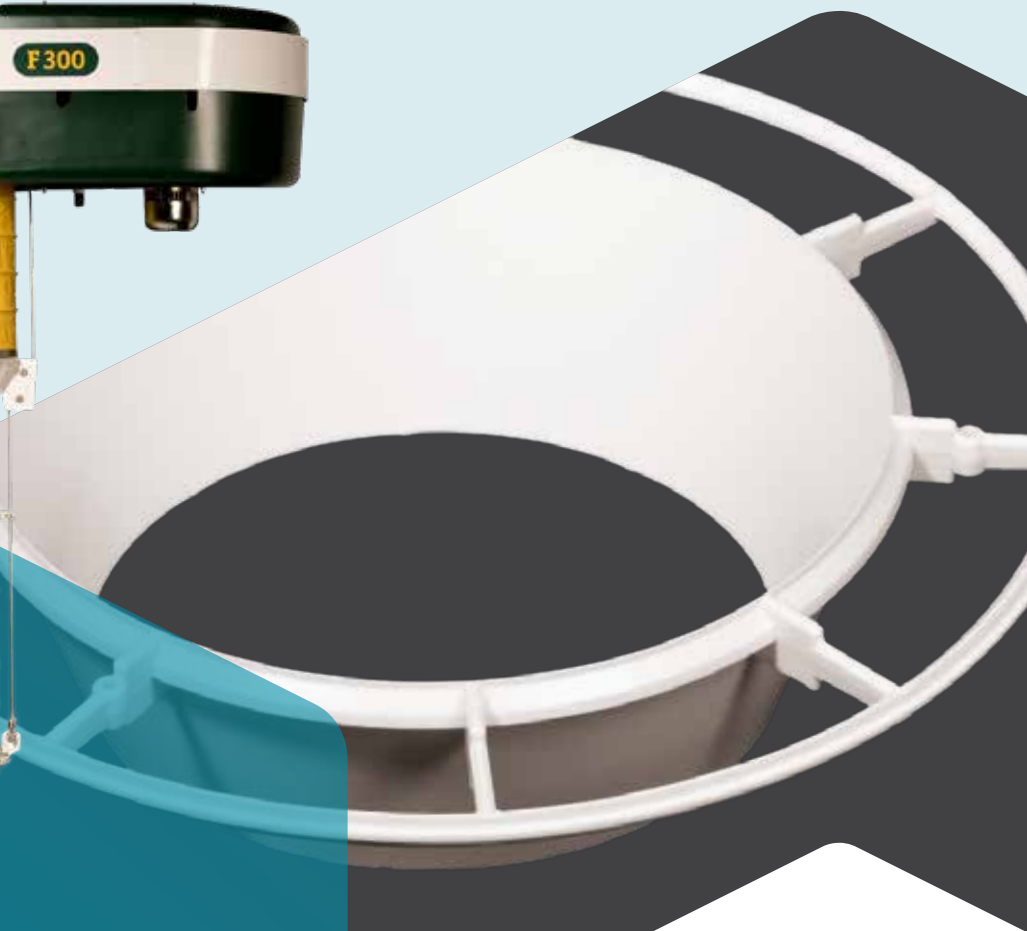
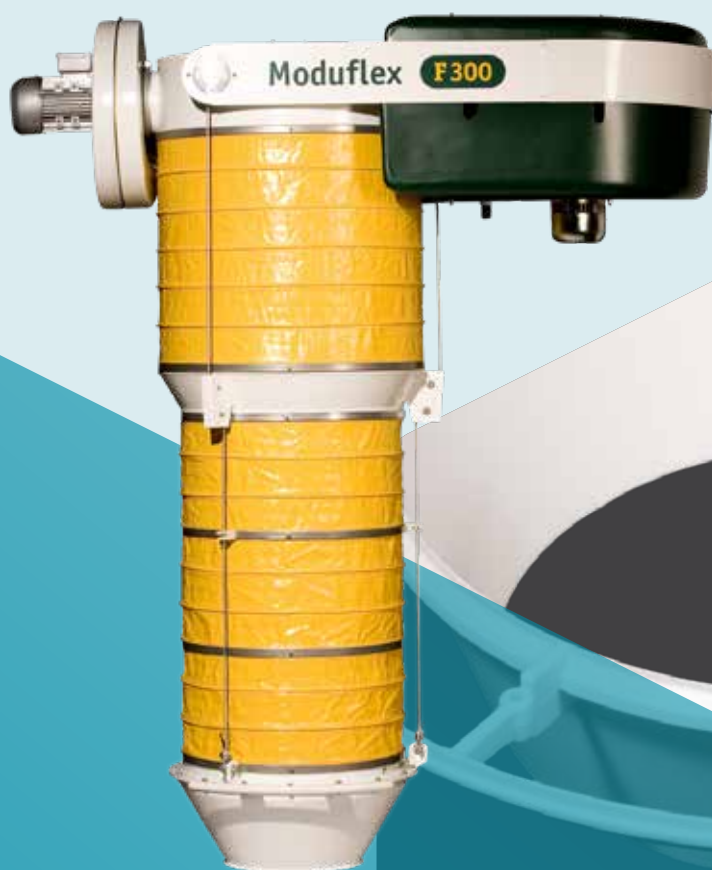


# MODUFLEX

## LOADING CHUTES

CONVEYING 





# SAFETY AND A CLEAN ENVIRONMENT IN ONE PRODUCT



Outloading of bulk goods is associated with the risk of creating waste and dust, as well as the danger of explosion. These risks can have a negative impact on both environment, work safety and the company's finances.

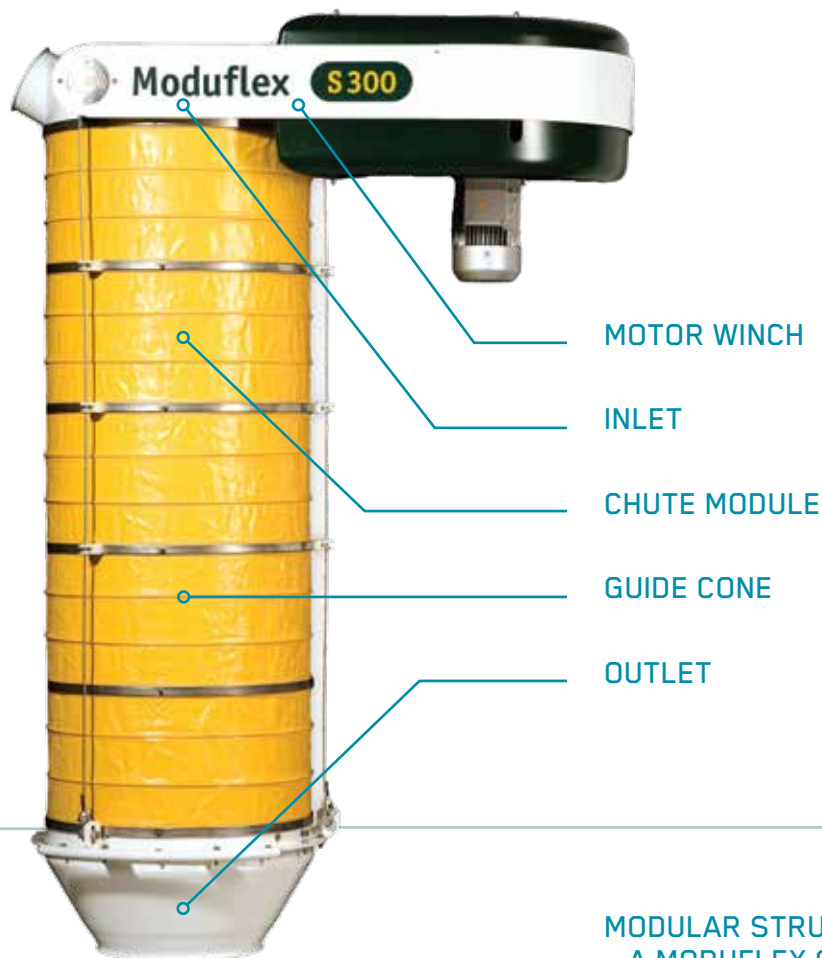
Cimbria Moduflex develops, manufactures and markets solutions that allow the dust-free outloading of bulk goods.

We have been doing this since 1977, and with over 12,500 systems delivered to countless different industries, Moduflex has accumulated a firm foundation of experience which is of constant benefit to customers around the world who invest in bulk outloading equipment.

## MODUFLEX SOLUTIONS MEAN:

- A reliable and experienced supplier
- Modularly-structured standard components, all kept in stock
- An extensive product range
- Easy maintenance and sturdy construction
- Leading design, technology and function
- Well-documented equipment, including for solutions requiring ATEX approval

## OUTLOADING SOLUTIONS



### MODULAR STRUCTURE – A MODUFLEX CHARACTERISTIC

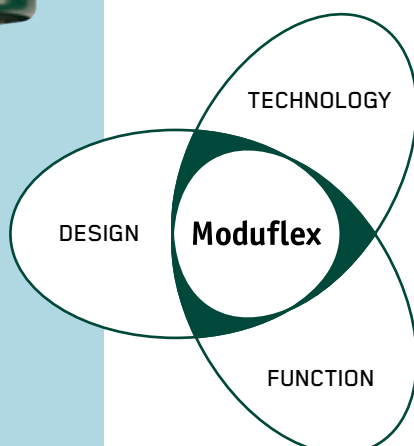
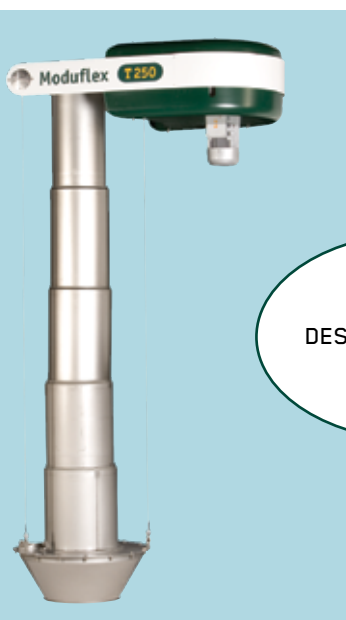
The modular structure of our machinery is a unique feature of Moduflex. This means that the user receives precisely the solution that matches his application, as well as a level of flexibility that enables modifications and repairs of the loading chute to be undertaken with a minimum of disruption of the outloading process. This reduces not just maintenance costs but also the knock-on effect in lost production time.

### FORM AND FUNCTION

Thanks to their sturdy structure and dynamic design, our loading chutes are highly functional and reliable outloading units. Moduflex loading chutes are intended to allow design, function and technology to go hand in hand, while at the same time fulfilling the requirements of the Machinery Directive, the ATEX Directive, etc., to ensure operator safety.

### SUPPORT AND SERVICE

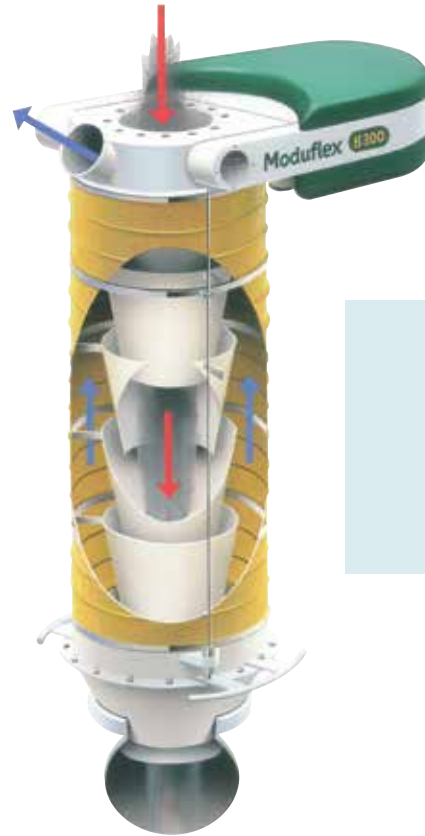
We place great emphasis on giving customers the right advice, so that they can select the very best solution – in both technical and financial terms – in collaboration with Moduflex. Our customers can always be certain that the product has been thoroughly tested and documented. In addition, we keep all standard components in stock, which means that we can provide quick and efficient service for our customers.



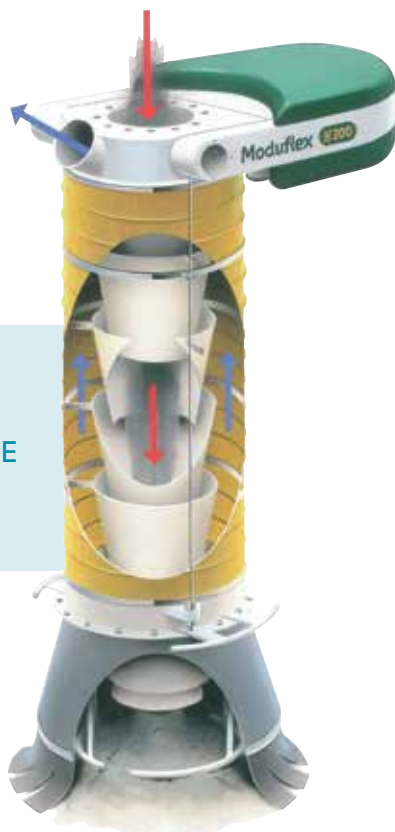
## PRINCIPLES OF LOADING

### CLOSED LOADING

- The outlet rests on the tanker's loading hatch creating a dust-free connection.
- A free material stream passes through a column of open, overlapping guide cones.
- A reverse air jet exhaust produces negative pressure which is necessary to eliminate dust creation.
- An indicator mounted in the outlet automatically stops the loading process when the tanker is full.



IN A CLOSED  
LOADING SYSTEM  
THE OUTLET  
NOZZLE RESTS  
ON THE TANKERS  
LOADING HATCH



IN THE OPEN  
LOADING SYSTEM  
THE LOADING CHUTE  
OUTLET RESTS ON  
THE PRODUCT PILE

### OPEN LOADING

- The loading chute outlet rests on the product pile
- A free material stream passes through a column of open, overlapping guide cones
- A reverse air jet exhaust produces negative pressure which is necessary to eliminate dust creation
- An indicator mounted in the outlet automatically raises the loading chute

## INLETS



### TYPE C + S

The Moduflex inlet for type C + S is a standard inlet. The aspiration orifice is 150 mm in diameter, and variable inlet diametres are available, depending on the capacity required. Automatic closing function for negative pressure and false air valves are available as accessories for type S inlets.



### TYPE H

The Moduflex inlet for type H is a standard inlet where overlap with the top cone is required. The type H inlet pipe is funnel-shaped, ensuring optimal flow of the product and minimal dust in the aspiration system.

Automatic closing function for negative pressure and false air valves are available as accessories for type H inlets.



### TYPE T

The Moduflex inlet for type T is supplied with a 250 mm diameter flange with 12 x 12 mm holes.

The aspiration orifice is 100 mm in diameter. The upper telescopic tube sections are mounted at the bottom of the inlet, using simple linking clamps which make it easy to replace one or more sections of the tube in case of damage.

Automatic 150 mm closing function shuts off negative pressure when the chutes are in the top position. The closing function is supplied in the same choice of material as the rest of the inlet.

All of the inlets fit a DN counter-flange as standard. The inlets can be supplied with adaptors for connecting to other types of transition.



False air valves in painted or stainless steel are available for all types of loading chutes. The false air valve is equipped with a pipe section which makes it easy to insert into the pipe of the aspiration system.



All inlets are constructed on the basis of a highly compact and sturdy design. The inlets are available in mild steel, stainless steel or wear-resistant versions. The telescopic tube, type T250, is delivered as standard in AISI 316 acid-proof steel.



## INTEGRATED FILTERS



### TYPE F

The Moduflex inlet for type F is a fully self-contained unit, independent of external filters. The inlet is supplied with an integrated filter module with nine filter bags. The filter inlet is equipped with its own fan with regulating damper and pressure tank, ensuring that the filter is continuously cleaned during loading.



The filter inlet in the type F300 is retractable, providing a very compact construction. As a result, this type of loading chute only requires a small installation height.



The filter bags are mounted on the top and bottom of the filter intake, and are available in several different versions to match various outloaded products and applications.

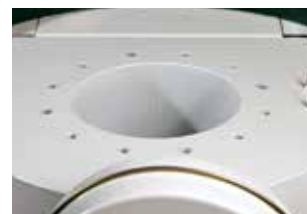


### TYPE D

Moduflex inlets for type D have the same characteristics as those for type F, but the inlet is supplied with an integrated filter module with nine filter cartridges. This filter module requires a certain installation height, thus providing a larger filter area than filter bags.



The filter cartridges are mounted on top of the filter inlet, and are thus extremely easy to service in connection with replacement and/or cleaning.



All of the inlets fit a DN counter-flange as standard. The inlets can be supplied with adaptors for connecting to other types of flanges.

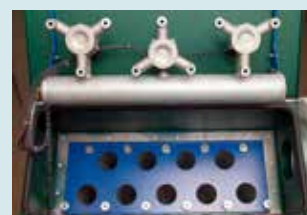


### TYPE K & N

The K & N series are equipped with a side-mounted filter unit. The construction enables easy access to replacement of filter units and magnetic valves. Furthermore, this solution enables even larger filter areas than the F & D types.



The standard filter area are 9 m<sup>2</sup>, 14 m<sup>2</sup> and 18 m<sup>2</sup>, but the models can be supplied with other filter sizes as an option.



The filter cartridges are mounted on top of the filter unit, and are thus extremely easy to service in connection with replacement and/or cleaning.

## CHUTE MODULES

### TYPE Y



The standard module for Moduflex loading chute is in PVC-clad polyamide with the designation PA700, in a yellow colour code. This module may be utilised with many different products, provided that the product temperature does not exceed 70°C.

### TYPE M



For food products a PVC-clad polyester module in a light grey colour can be used. The material is approved for drinking water, and can thus be used with all kinds of foodstuffs, provided that the product temperature does not exceed 70°C. The module is also resistant to UV light, rot and fungus.

### TYPE B



The NPG module is in a black chloroprene rubber-clad polyamide material which is resistant towards many types of chemical impact, has a good wearing quality and offer high protection against UV light. The NPG module has a working range of up to 130°C.

### TYPE Y WITH ANTISTATIC STRIPS



In applications where the products have a latent risk of creating a dust explosion, e.g. grain and sugar, the ATEX directive comes into force. It is therefore necessary that the modules are anti-static, and this is achieved by adding anti-static strips. These strips are connected to the in-sewn metal rings, thereby ensuring that no spark can occur due to the built-up of static electricity.

### TYPE W



The white module has the same characteristics as the standard module, but the "colourless" white version may be more suitable for certain types of product. Other colours are available on request.

### TYPE G



For very demanding tasks – i.e. with respect to the temperature or chemical composition of the product – a dark grey Teflon-clad fibreglass module is used. This module has a working range of up to 260°C, and can resist almost all kinds of external impact.

### TYPE R



The red module material is Valmex Corotex P250, a rusty-red polyester and fibre glass fabrics coated with silicone rubber on both sides. The type R module has a continuous working temperature area ranging from -40°C and 150°C with short term working temperature on 220°C.

### TYPE Z



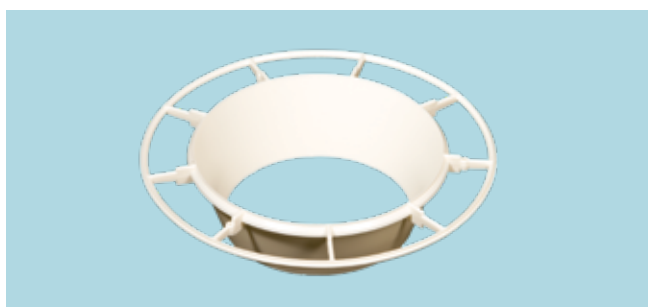
In conditions, where there is a possibility for very low air temperatures, a special material has been developed, from which these green modules are manufactured. The module material is Vinyplan Artic with a base material of polyester and a PVC/PU coating. The type Z module has a temperature working range from -60 °C - +70 °C. At the same time, this material is anti-static as standard.

## GUIDE CONES



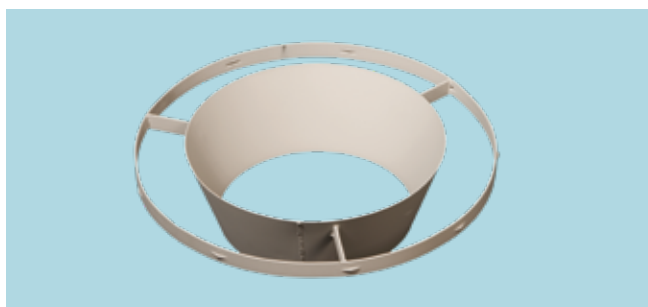
### SUPPORT RING TYPE O

The internal support ring is standard in type C300, but can also be supplied for all types of loading chutes. The support ring ensures the safe coupling of the modules in situations where guide cones are not necessary or desired. The support ring can usefully be utilised with products which produce little or no dust, or with products for which there is a risk of a build-up of residues on the inner side of the guide cone. The support ring can be supplied in normal steel or stainless steel.



### ULTRAMIDE CONE TYPE U

Moduflex is the only loading chute manufacturer to offer guide cones in a nylon-based material. The guide cone is made of high-density polyamide, and is moulded with a wall thickness of 6 mm. This produces a very light but extremely durable guide cone which may be utilised with products with moderate abrasive wear characteristics, or when a relatively low weight is desirable for the total outloading chute. The ultramide cone may be used with all types of loading chute in the 300 series.



### STEEL CONES TYPE J

The standard steel guide cone can be supplied for all types of loading chutes, e.g. when the parts in contact with the outloaded product are required to be in stainless steel, such as when outloading foodstuffs. The steel cone is constructed as standard with a wall thickness of 2 mm in both normal and stainless steel, but can also be supplied in a 4 mm version, and in a 4 mm version in Hardox 400.



### OVERLAPPING STEEL CONES TYPE L

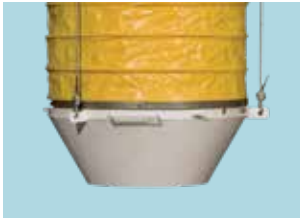
The overlapping steel guide cones are supplied as standard in a variety of loading chutes and are typically used with products that create a lot of dust, or where an optimum separation of product and exhaust air is desirable. The steel cone is constructed as standard with a wall thickness of 2 mm in both normal and stainless steel, but can also be supplied in a 4 mm version, and in a 4 mm version in Hardox 400.

Moduflex outloading solutions can be supplied with a number of different guide cone types to match various types of outloaded product, such as powder, clinker granulate or pellets, ensuring that the product is guided through the chutes. The guide cones are supplied with an edge ring, onto which the modules are fastened by the external connection ring. This means that in case of damage to the guide cone, or in connection with normal wear, the relevant cone or cones may be replaced without having to remove the entire chute. The cones can be combined in the various types of chutes.



## OUTLETS

### TANK OUTLETS



#### BASIC TYPE TB

The outlet is supplied with three easily accessible fixing arms, onto which each wire is secured with a wire lock. The outlet is moreover supplied with three fixed grips located at 120°.



#### STANDARD TYPE TS

The outlet is mounted on an outlet coupling. Three wire brackets are also mounted to allow adjustment of the hoisting wires. Two loose handles are provided.



#### HEAVY DUTY TYPE TH

The outlet is supplied with an internal cone for optimum separation of the product and exhaust air, as well as adjustment bushes for the hoisting wires and two grips. Two loose handles are provided.

### TELESCOPIC OUTLETS



#### TANK OUTLET TYPE TS

The outlet is mounted on an outlet plate. Three wire guides for the hoisting wires are fitted to the plate, along with a flange for the aspiration tube and a threaded bush for the level indicator.



#### FLAT OUTLET TYPE FS

The outlet is mounted on an outlet plate and is equipped with a dust skirt and an outlet cage to which a level indicator can be fitted.



#### MULTI-OUTLET TYPE MS

The outlet is a combination of the tank and flat outlet, and is thus equipped with both an outlet cone and a dust skirt. For loading into flat bed trucks, the dust skirt is lowered.



For tanker truck loading, the dust skirt is raised and fastened using the fittings on the two handles. The outlet cone has a similar design to that of the tank outlet.

### FLAT OUTLETS



#### STANDARD TYPE FS

The outlet is supplied with a dust skirt, as well as a protection guard, on which a level indicator can be fitted. The protection cage can be supplied in mild or stainless steel.



#### HEAVY DUTY TYPE FH

The outlet is supplied with a stronger and longer dust skirt than the standard flat outlet, as well as a larger protection cage, enabling two level indicators to be mounted.

### OPTION



#### RUBBER COVERING

As an option, the T-outlet can be supplied with a 10mm soft black Remaline or a 6mm white Remaline food stuff approved rubber.

### MULTI-OUTLETS



#### STANDARD TYPE MS

This outlet is a combination of the tank outlet and flat outlet, and is consequently equipped with both an outlet cone and a dust skirt. For loading into flat bed cars, the dust skirt is lowered.



For tanker loading the dust skirt is raised and fastened in the fittings on the two grips. The outlet cone has a similar design to that of the tank outlet. An electrical raising/lowering function of the skirt is available as an option.



#### HEAVY DUTY TYPE MH

This outlet is a combination of the tank outlet and flat outlet, and is thus equipped with both an outlet cone and dust skirt. The dust skirt is stronger and longer than the one on the standard multi-outlet.



For tanker loading, the dust skirt is raised and fastened using the fittings on the two handles. The outlet cone has a similar design to that of the tank outlet. An electrical raising/lowering function of the skirt is available as an option.



## MOTOR, GEARS AND CONTROLS



The motor winch is supplied with a gear motor. It can be supplied with a control panel in which all functions are integrated, or with a junction box. The control cabinet or junction box is mounted on sliding brackets which enable the control gear to be lowered for easy access.

## MOTOR FRAME

The entire motor frame is designed and manufactured as a very sturdy construction, encased in a housing of steel and ABS plastic which ensures optimal protection of the electrical and mechanical parts. At the same time, a mere four bolts provide full access, from below or from above, to all parts of the motor winch.

## WINCH DRUMS AND END STOPS



The motor winch is equipped with three sturdy winch drums as standard, supported by a high-quality ball bearing. The three corresponding hoisting wires give extremely even and balanced hoisting and lowering. A tight/slack wire function is provided as standard on all loading chutes.

MINERALS



FLOUR



COAL



GRAIN



CEMENT &  
CLINKERS



ANIMAL  
FEED



FLY ASH



FERTI-  
LIZERS



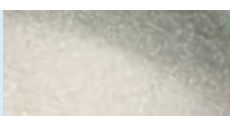
STARCH



WOOD  
CHIPS



SUGAR



POWDERS



## EXAMPLES OF PRODUCTS TO BE LOADED

- MINERALS
- COAL
- CEMENT & CLINKERS
- FLY ASH
- STARCH
- SUGAR
- FLOUR
- GRAIN
- ANIMAL FEED
- FERTILIZERS
- WOOD CHIPS
- POWDERS

## ACCESSORIES



FLEXPOSITIONER



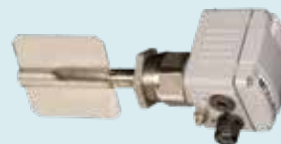
FLEXCLOSE



FLEXFILL



FLEXCONTROL



FLEXVIB/  
INDICATOR

A WIDE RANGE OF  
ACCESSORIES ENSURES  
THAT MODUFLEX LOADING  
CHUTES CAN BE ADAPTED  
TO PRECISELY MEET  
CUSTOMER DEMANDS

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TOGETHER.**