MechaTron® Feed System, Series M – Coni-Steel® Vibro Feeder

- **Feed system for volumetric and gravimetric bulk solids feeding**
- **Coni-Steel® feed hopper with service-free Vibro Feeder**
- **Quick and easy dismounting for cleaning and product change**
- **Integrated measuring, control, and supervisory electronics**
- **High feed accuracy and constancy, better than ± 0.5%**

Application

The MechaTron® feed system is used for continuous volumetric and gravimetric feeding of bulk solids, e.g. powders, granules, chips, flakes and fibres.

Typical applications come up in any industrial area, particularly in the plastics, chemical, food, detergent and pharmaceutical industries.

Application

The MechaTron® Coni-Steel® Vibro Feeder comprises a Vibro Feeder, feed and extension hoppers, and a support structure.

Gravimetric feeders are completed by two weighing modules.

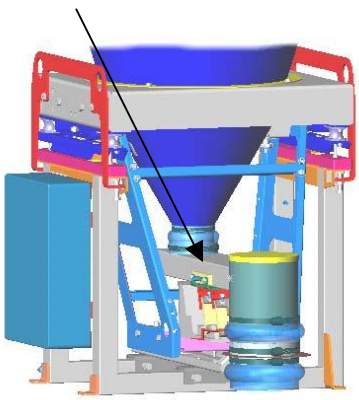
The special feed hopper geometry of the MechaTron® Vibro Feeder ensures consistent material flow to the feed unit.

For adaption to feed rate and application, the extension hopper is available in various sizes.

The weighing modules of the gravimetric feeder consist of hermetically sealed precision load cells in strain-gauge technique with integral overload and anti-rotation protections and hold-downs.

The weighing electronics is integrated into the mechanical system but can also be installed separately.

Vibro Feeder



Feeder system with Vibro Feeder

Operating Principle

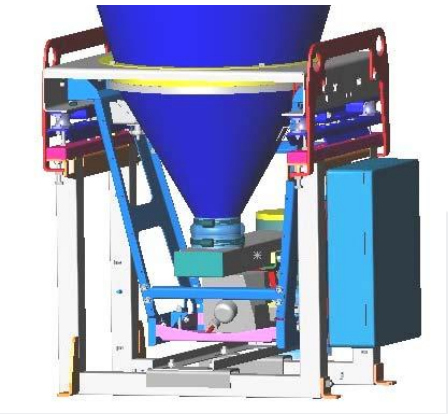
The MechaTron® feed system is used as volumetric feeder or as gravimetric feeder operating on the loss-in-weight principle.

With loss-in-weight feeders, the actual feed rate is determined from the decrease in weight per unit time.

A controller compares the actual feed rate to setpoint and controls the feed element.

The new Coni-Steel® Vibro Feeder is equipped with a service-free feed unit which combined with the special hopper geometry ensures optimal conditions for high feed quality.

The MechaTron feed system excels through quick and easy dismounting and reassembly of contact parts for product change and cleaning from the back (non-process side) of the feeder.



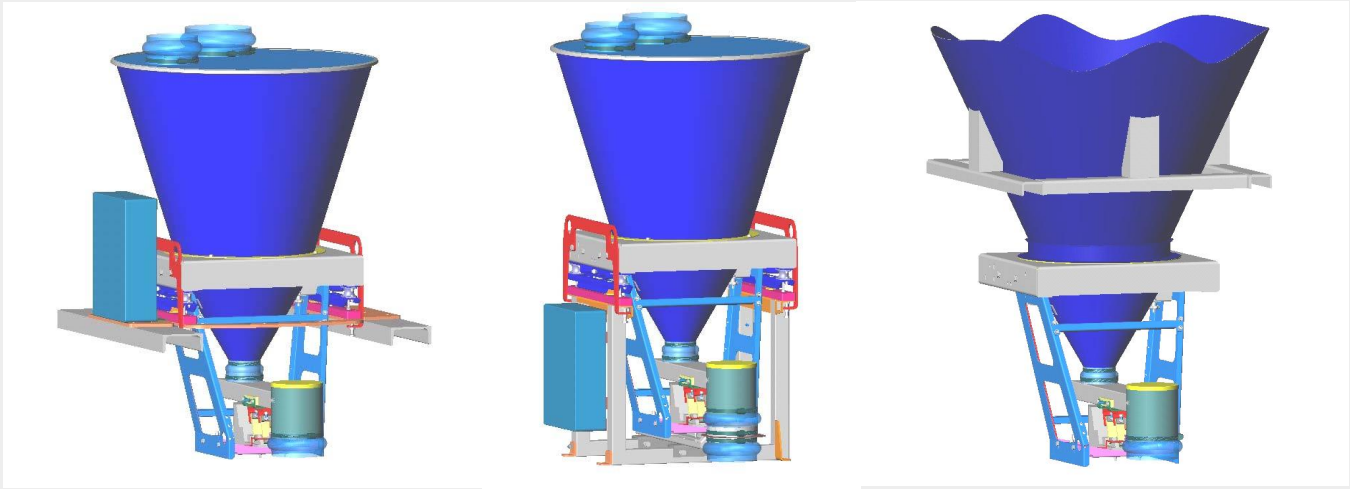
Technical Data

Parts in contact with bulk solid	Stainless steel 1.4404 (316L)
Material temperature	-30°C to +100°C
Ambient temperature	-10°C to +50°C
Bulk density	0.3 – 1.0 kg/dm³
Design pressure	-5 to 95 mbar
Operating pressure	-0.5 to 20 mbar
Feed rate	5 to 10 000 dm³/h
Feed accuracy	±0.5% (typical)
Feed constancy	±0.5% (typical)
Drives	Magnetic exciters for discharge units

Variants

Feed principle	Gravimetric (loss-in-weight feeder) Volumetric
Feed elements	Feed units 120 and 250 mm width
Feed hopper	Stainless steel 1.4404 (316L)
Extension hopper	75, 210 and 380 dm³ volumes

Possible Arrangements



Installed in platform | **Standing on platform** | **Suspended from hopper**

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MechaTron Feed System®, Series M – Coni-Steel®

- **Feed system for volumetric and gravimetric bulk solids feeding**
- **Discharge aid with internal agitator**
- **Feed and extension hoppers of corrosion and acid resistant steel**
- **Quick and easy dismounting for cleaning and product change**
- **Integrated measuring, control, and supervisory electronics**
- **High feed accuracy and constancy, better than ± 0.5%**

Application

The MechaTron® feed system is used for continuous volumetric and gravimetric feeding of bulk solids, e.g. powders, granules, chips, flakes and fibres. Typical applications come up in any industrial area, particularly in the plastics, chemical, food, detergent and pharmaceutical industries.

Construction

The MechaTron® Coni-Steel® type is designed with feed hopper, internal agitator, feed element, extension hopper and supporting structure.
Gravimetric feeders are completed by two weighing modules.

The internal agitator moves the material in the hopper and ensures safe material flow into the feed element. Feed elements are designed as single-shaft or dual-shaft spirals and screws. For adaption to feed rate and application, the extension hopper is available in various sizes. The weighing modules of the gravimetric feeder consist of hermetically sealed precision load cells in strain-gauge technique with integral overload and anti-rotation protections and hold-downs.
The weighing electronics is integrated into the mechanical system but can also be installed separately.

Feeder with internal agitator

Operating Principle

The MechaTron® feed system is used as volumetric feeder or as gravimetric feeder operating on the loss-in-weight principle. With loss-in-weight feeders, the actual feed rate is determined from the decrease in weight per unit time. A controller compares the actual feed rate to setpoint and controls the feed element. The hopper geometry with steep walls and internal agitator ensures safe feeding also of sluggish materials with high feed accuracy and constancy.

The MechaTron® feed system excels through quick and easy dismounting and reassembly of contact parts for product change and cleaning from the service side (backside). The patent is pending.

Technical Data

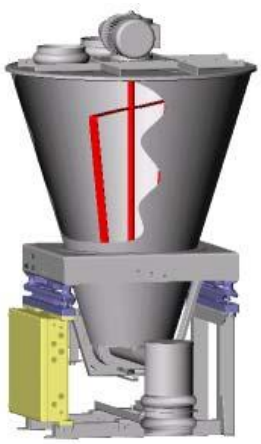
Parts in contact with bulk solid	Stainless steel 1.4404 (316L)
Material temperature	-30°C to +100°C
Ambient temperature	-10°C to +50°C
Bulk density	0.1 to 1.2 kg/dm³
Design pressure	-5 to 95 mbar
Operating pressure	-0.5 to 20 mbar
Feed rate	5 to 9,500 dm³/h
Feed accuracy	+/- 0.5% (typical)
Feed constancy	+/- 0.5% (typical)
Drives	AC motors for feed elements and agitators

Variants

Feed principle	Gravimetric (loss-in-weight feeder) Volumetric	**Feed hopper**	Corrosion and acid resistant steel 1.4404 (316L)
Feed elements	Feed screws and spirals with singleshaft, 35 to 89 mm diameter, and dual-shaft, 26 to 47 mm diameter	**Extension hopper**	75, 210 and 380 dm³ volumes
Discharge aid	Internal agitator		

Possible Arrangements

Installed in platform



Standing on platform

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MechaTron® Feed System, Series L – Coni-Steel®

- **Feed system for volumetric and gravimetric bulk solids feeding**
- **Discharge aid with internal agitator**
- **Feed and extension hoppers of corrosion and acid resistant steel**
- **Quick and easy dismounting for cleaning and product change**
- **Integrated measuring, control, and supervisory electronics**
- **High feed accuracy and constancy, better than ± 0.5%**

Application

The MechaTron® feed system is used for continuous volumetric and gravimetric feeding of bulk solids, e.g. powders, granules, chips, flakes and fibres.

Typical applications come up in any industrial area, particularly in the plastics, chemical, food, detergent and pharmaceutical industries.

Application

The MechaTron® Coni-Steel® type is designed with feed hopper, internal agitator, feed element, extension hopper and supporting structure.

Gravimetric feeders are completed by two weighing modules. The internal agitator moves the material in the hopper and ensures safe material flow into the feed element.

Feed elements are designed as single-shaft or dual-shaft spirals and screws.

For adaption to feed rate and application, the extension hopper is available in various sizes.

The weighing modules of the gravimetric feeder consist of hermetically sealed precision load cells in strain-gauge technique with integral overload and anti-rotation protections and hold-downs.

The weighing electronics is integrated into the mechanical system but can also be installed separately.

Feeder with internal agitator

Operating Principle

The MechaTron® feed system is used as volumetric feeder or as gravimetric feeder operating on the loss-in-weight principle.

With loss-in-weight feeders, the actual feed rate is determined from the decrease in weight per unit time. A controller compares the actual feed rate to setpoint and controls the feed element.

The hopper geometry with steep walls and internal agitator ensures safe feeding also of sluggish materials with high feed accuracy and constancy.

The MechaTron feed system excels through quick and easy dismounting and reassembly of contact parts for product change and cleaning from the backside, the non-process side. The patent is pending.

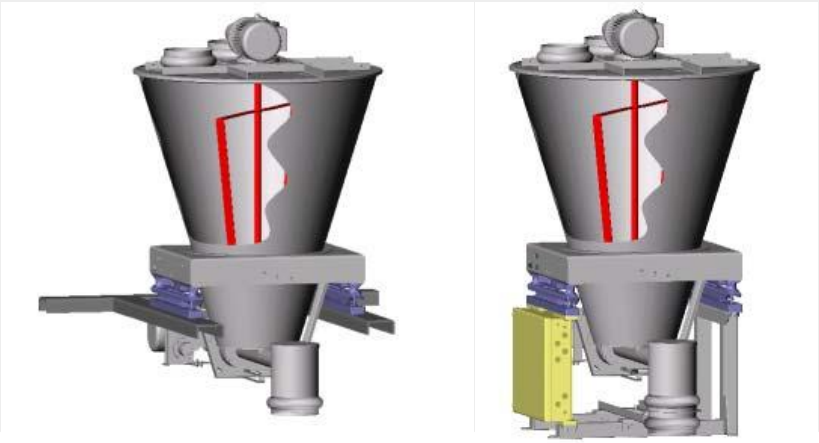
Technical Data

Parts in contact with bulk solid	Stainless steel 1.4404 (316L)
Material temperature	-30°C to +100°C
Ambient temperature	-10°C to +50°C
Bulk density	0.1 to 1.2 kg/dm³
Design pressure	-5 to 95 mbar
Operating pressure	-0.5 to 20 mbar
Feed rate	0.5 to 600 dm³/h
Feed accuracy	±0.5% (typical)
Feed constancy	±0.5% (typical)
Drives	AC-Drive for Feed system and agitator

Variants

Feed principle	Gravimetric (loss-in-weight feeder) Volumetric
Feed elements	Feed screws and spirals with single-shaft, 12.7 to 35 mm diameter, and dual-shaft, 17 to 35 mm diameter
Discharge aid	Internal agitator
Feed hopper	Stainless steel 1.4404 (316L)
Extension hopper	30 and 83 dm³ volumes

Possible Arrangements



Installed in platform **Standing on platform**

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MechaTron® Feed System, High Range – Coni-Flex®

- **Feed system for volumetric and gravimetric bulk solids feeding**
- **Coni-Flex® feed hopper with flexible wall and external agitation**
- **Quick and easy dismounting for cleaning and product change**
- **Integrated measuring, control, and supervisory electronics**
- **High feed accuracy and constancy, better than ± 0.5%**

Application

The MechaTron® feed system is used for continuous volumetric and gravimetric feeding of bulk solids, e.g. powders, granules, chips, flakes and fibres.

Typical applications are found in the plastics, chemical, food, detergent pharmaceutical, building materials, and cement industries.

Construction

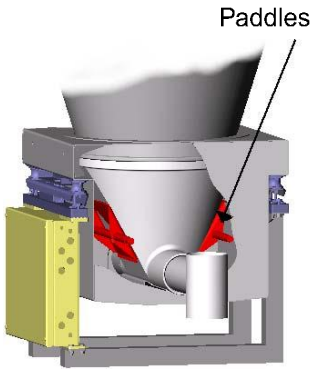
The MechaTron® Coni-Flex® feed hopper is designed with flexible wall, external agitation system, helix, extension hopper and supporting structure.
Gravimetric feeders are completed by two weighing modules.

Paddles "activate" the flexible wall of the Coni-Flex® feed hopper and ensure consistent material flow from the feed hopper into the helices designed as single-shaft spirals and screws.

For adaption to feed rate and application, the extension hopper is available in various sizes.

The weighing modules of the gravimetric feeder consist of hermetically sealed precision load cells in strain-gauge technique with integral overload and anti-rotation protections and hold-downs.

The weighing electronics is integrated into the mechanical system but can also be installed separately.



Feeder with external agitation systeme

Operating Principle

The MechaTron® feed system is used as volumetric feeder with controlled prefeeder or as gravimetric feeder operating on the loss-in-weight principle.

The MechaTron® feed system is used as volumetric feeder with controlled prefeeder or as gravimetric feeder operating on the loss-in-weight principle.

With loss-in-weight feeders, the actual feed rate is determined from the decrease in weight per unit time.

A controller compares the actual feed rate to setpoint and controls the helix. The new Coni-Flex® geometry of the flexible feed hopper with axisymmetrical hopper inlet is perfectly tuned to the external agitation principle and ensures consistent material flow into the helix.

The Coni-Flex® feeder provides optimal conditions for high feed quality. The patent is pending.

The MechaTron® feed system excels through quick and easy dismounting and reassembly of contact parts for product change and cleaning from the service side (backside). The patent is pending.

Technical Data

Metal parts in contact with bulk solid	Stainless steel 1.4404 (316L), 1.4571
Flexible Coni-Flex® feed hopper	Vinyl grey; Vinyl white; Polyurethane black, electrically conductive; Polyurethane toner-resistant
Material temperature	Vinyl -12°C to +80°C, polyurethane -30°C to +90°C
Ambient temperature	-10°C to +50°C
Bulk density	0.1 to 2 kg/dm³
Design pressure	-5 to 95 mbar
Operating pressure	-0.5 to 20 mbar
Feed rate	36 to 32,000 dm³/hr
Feed accuracy	± 0,5 % 0.5 %
Feed constancy	± 0,5 % 0.5 %
Drives	AC motors for helices and paddles

Variants

Feed principle	Gravimetric (loss-in-weight feeder) Volumetric
Helices	Single screws and spirals, 76 to 152 mm diameter
Agitation	External agitation system (paddles)
Feed hopper	Flexible wall
Extension hopper	0, 280, 560, 1400 and 2800 dm³ volumes

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MechaTron Control Electronics (Volumetric)

- **Integrated into the feeder mechanics or arranged separately**
- **Simple installation: Plug & Play**
- **Big feed rate setting range**
- **Easy expansion for gravimetric feeder**

Application

The control electronics are specially designed for the feeding of bulk solids in volumetric mode using a MechaTron feeder. The electronics can be mounted on the MechaTron direct or close by with a cable length of max. 30 m, depending on the local situation.

Integrated into the feeder mechanics, the unit is ready to operate after connection of power and, if necessary, of the control line, with no need for calibration.

Equipment

The electronics comprise a power controller tuned to the feed drive and the start-up/monitoring of the agitation system (agitator, paddle) in the feed hopper.

For integration into the interlock chain, the unit is equipped with Release input and Error Message output.

Variants:

- Control via host system
  For control via the host system, the Start/Stop binary input and the Feed Rate Setpoint analog input are integrated.

- Host system/integrated control unit combination
  The system is operated via the integrated Start/Stop operating elements and the 0-100% digital feed rate selector, or via the external control inputs.
  The changeover switch for the control sources is integrated.

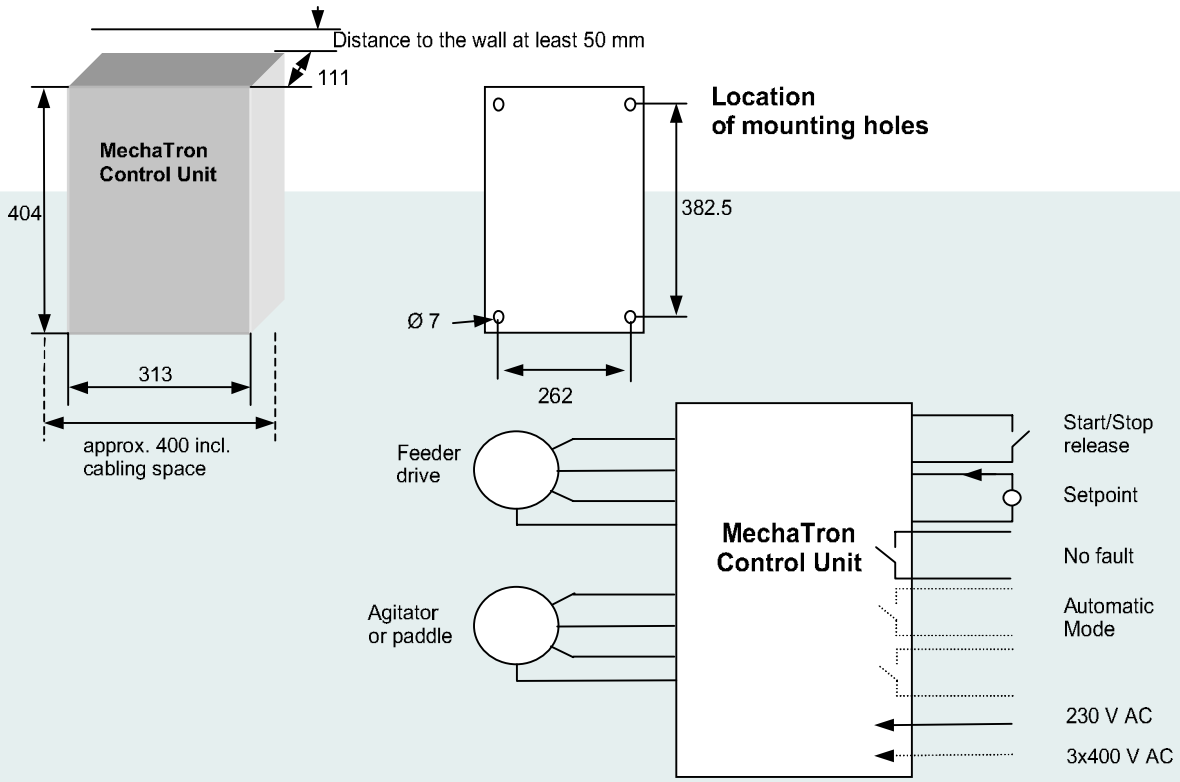
The system can easily be extended for use as a gravimetric loss-in-weight feeder.

Operating Principle

The system sets the speed of the feeder (feed screw or spiral) or its amplitude (Vibro Feeder) so that the desired material flow results. Motor status (overload, excess temperature) is reported, and the motor is protected against damage.

Starting of the feeder drive also starts the agitator or paddle drive.

Dimensions for separate mounting with connecting cable of max. 30 m:



Technical Data (options for selected variants)

Supply voltage Feed drive and control voltage Agitator or paddle drive	230 V AC ± 10 %, max. 1.5 kW 3x400 V AC ± 10%, max. 1.5 kW
Binary output "No Fault" "Running" (option) "Automatic mode" (option)	Contact output 230 V, 1 A
Preset setpoint (option)	4 - 20 mA, potentially separated by user
Release and Start/Stop input	contact for 230 V by user
Control unit (option)	3-digit display, digit height approx. 18 mm
Operating temperature Storage temperature	-10 ... 50 °C -20 ... 70 °C
Protection type	IP 65
Dimensions of control box	404x313x110 mm. If mounted separately: on spacer rollers with 50 mm distance to the wall.

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ProFlex® C500 / C6000 Loss-In-Weight Feeder

- **Feed System for Volumetric and Gravimetric Feeding of Powders and Granulate Materials**
- **Rapid and Simple Disassembly for Cleaning and Changing Feed Material**
- **Asymmetric Construction Allows a Space-Saving Arrangement in Pairs of up to 8 Feeder Stations**
- **Flexible Feeder Container with External Agitation**
- **Integrated Measuring, Control and Regulation Electronics**

Properties

The ProFlex® C feed system is used for the continuous volumetric and gravimetric feeding of bulk materials such as powders and granulate materials.

The ProFlex® C is specially designed to meet the requirements of the compound and masterbatch industries: the components can be easily disassembled to adjust the feed rate or to be cleaned with just one tool.

The asymmetric constructions of the ProFlex® C allows for a space-saving arrangement in pairs of up to 8 feed stations. The orientation of the discharge side can be changed with just a few movements to enable the greatest possible flexibility.

There are two basic ProFlex® C modules and a variety of extension hoppers, screws and spirals for adaptation to the bulk material characteristics and the flow rate.

Design

The ProFlex® C operates using the principle of external agitation: the feeder trough, of different elastomers, is filled extraneously and thus facilitates a material flow that is gentle on the material in the container and an even filling in the feed organ.

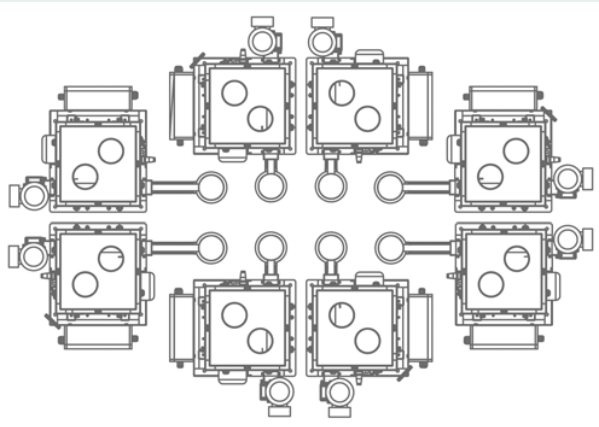
The geometry of the ProFlex® C discharge pipe creates a low-pulsation discharge at lower screw rotations and thus enlarges the utilizable adjustment range at higher feed constancy.

The ProFlex® C is non-sensitive to lateral shocks or oscillations thanks to the MULTI-POINT weighing system. The straightforward transportation safety device allows the scales to be transported securely.

All load or signal cables between the weighing and stationary sections of the ProFlex® C are laid in the interior of the weighing module and are not affected by shunt forces.

Technical Data

	C500 Series	C6000 Series
Volumetric feed rate	1 - 500 l/hr	100 - 6000 l/hr
Single spiral Single screw	19 mm – 44 mm	57 mm – 102 mm
Extension hopper	approx. 50 l	approx. 200 / 400 l
Worm drive (three-phase motor)	0.18 kW	0.75 kW
Walkantrieb (three-phase motor)	0.12 kW	0.37 kW
Ambient temperature	-20...50°C	
Bulk materials temperature	-30...80°C (higher temperatures on request)	
Bulk material density	0.3 to 0.8 kg/dm³ (higher densities on request)	
Grain size	up to 5 mm	



8-fold view

Paired arrangement ot two ProFlex® C devices

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