WE CARE.

HECHT technologie

DISCHARGING FIBCs

Discharging FIBCs
Basics

HAND OUT

DESCRIPTION

FIBC discharge stations by HECHT are used in particular in the chemical, pharmaceutical and food industries.

Powders, granules and other bulk solids are often transported and temporarily stored in FIBCs. Consequently, FIBC discharge stations are required for further processing.

With an experience of more than 30 years, HECHT is your competent and reliable partner for all tasks and questions as to the discharge of FIBCs.

SETUP

An FIBC discharge station mainly consists of **3 components**:

1 Connection system

Core component of an FIBC discharge station for connecting and discharging the FIBCs.

2 Link / interface

to the next process step,
e.g. dosing unit, suction shoe with pneumatic conveying, mixer, silo, buffer, sack discharge station, ...

3 Basic framework

consisting of:

Lifting device

e.g. chain hoist, lifting column or forklift for lifting and proper positioning of the FIBC for discharging

FIBC support

for protecting the operator when working under suspended loads; optionally fitted with agitation unit

Frame

for fastening the connection system and the FIBC support

QUESTIONS?

When planning an FIBC discharge station, the operator should be aware of the following items:

- **Product:** free-flowing or poor-flowing?
- **Protection:** Product protection, operator protection, dust protection or no requirements?
- **Frequency of use of the station:** frequent or rather sporadic use?
- **Local conditions:** Storey, ceiling height, load capacity of floor and ceiling?

Important assistance: **questionnaire**

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

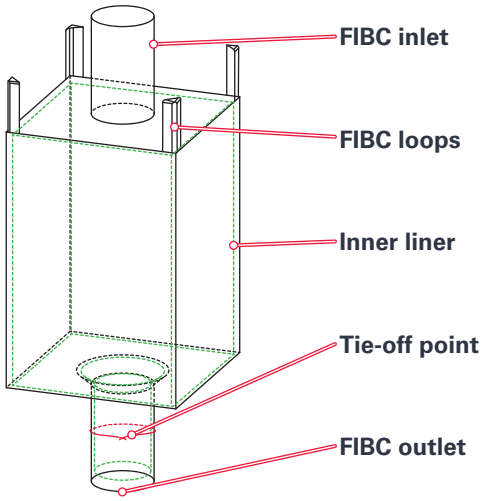
I-BE 00 en

Discharging FIBCs
Types of FIBC

HAND OUT

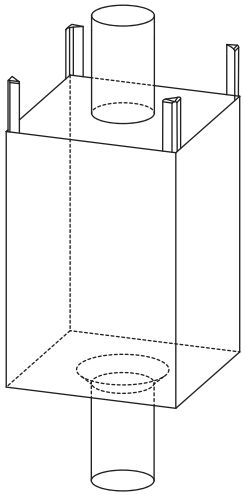
DESCRIPTION

FIBCs are **Flexible Intermediate Bulk Containers** made from stable plastic fabric. They are used very frequently, constituting a low-cost (acquisition costs, stock keeping) and versatile alternative to rigid containers / IBCs.

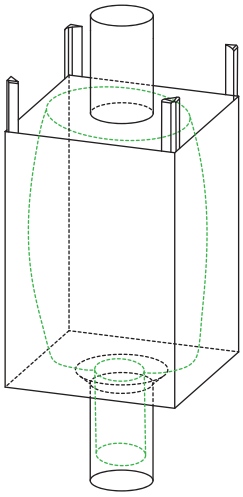


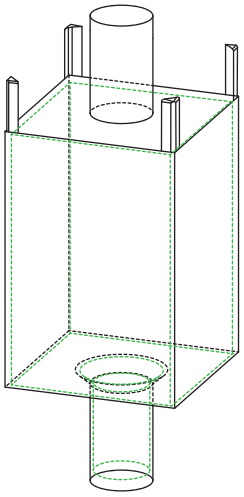
TYPES OF FIBC

WITHOUT INNER LINER



WITH INNER LINER (MADE FROM PLASTIC OR ALUMINIUM)





DESIGN

- sewn fabric
- little escape of product possible at the seams

INNER LINER NOT SHAPED

- continuous liner, not attached in the bag
- Inner liner may be drawn into the FIBC outlet and may disturb the discharging process
- Clamping or retracting device recommended (see I-BE 71 en)

INNER LINER SHAPED

- matched to the shape of the FIBC and fixed in the FIBC (glued or sewn)

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HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

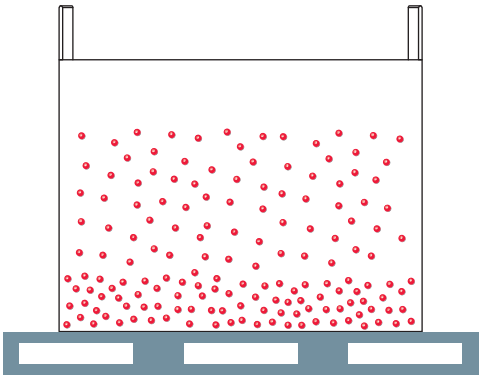
W: www.hecht.eu
E: info@hecht.eu

Discharging FIBCs
Discharging Behaviour

HAND OUT

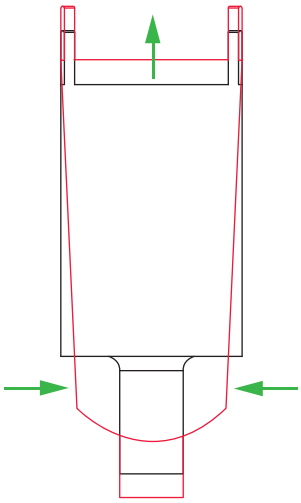
DISCHARGING BEHAVIOUR

BEHAVIOUR DURING STORAGE/TRANSPORT



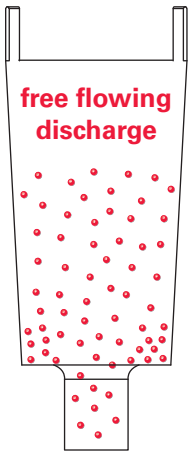
- **Compaction of the product** in the lower area of the FIBC due to the weight of the product
- occurs during storage and transport

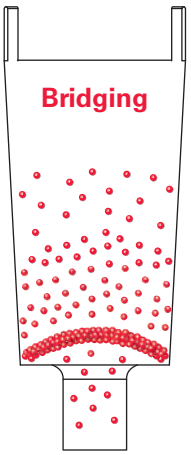
SUSPENSION BEHAVIOUR

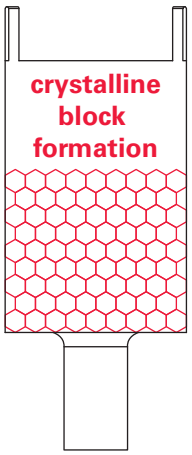


- FIBC becomes **longer** and **narrower** (unless a block is formed) and a **bulge** is produced at the bottom of the FIBC

DISCHARGING BEHAVIOUR







FREE-FLOWING PRODUCTS

- unproblematic discharge
- no agitation unit required

POOR-FLOWING PRODUCTS

- Product compaction and stretching of the FIBC support bridging so that discharging is not possible without assistance
- Agitation unit with massaging system breaks up the bridges

CRYSTALLINE PRODUCTS

- Due to crystalline compounds, the product tends to form blocks and cannot be discharged
- Agitation unit with vibration loosens the compounds

The actual behaviour depends on the product: combinations are possible.

Recommendation: Discharge test at the **HECHT test laboratory**

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HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

I-BE 02 en

Discharging FIBCs
Check list for quotation

CHECK LIST

PERSONAL DATA

Company: _____

Street: _____

Postal Code / City: _____

Project: _____

Contact person: _____

E-mail: _____

Phone: _____

Fax: _____

RANGE OF APPLICATION

☐ Chemical industry ☐ Food industry ☐ Pharmaceutical industry

☐ API manufacturer ☐ _____

PRODUCT TO BE DISCHARGED

PRODUCT DATA

Product designation: _____ Temperature [°C]: _____

Bulk density [kg/l]: _____ Particle size [mm or ''']: _____

Moisture content [% H_2O]: _____ Angle of repose: _____

PRODUCT CHARACTERISTICS

☐ powdery ☐ sticky ☐ hardened ☐ flushing ☐ conductive

☐ flaked ☐ caking ☐ flammable (MIE _____) ☐ poor-flowing ☐ fragile

☐ free-flowing ☐ hygroscopic ☐ reacts with moisture ☐ pellet-shaped ☐ needle-shaped

☐ dusty ☐ lumpy (big) ☐ reacts with oxygen ☐ crumbly (small)

☐ fluidizing ☐ corrosive ☐ electrostatic charging ☐ graining: _____

☐ abrasive ☐ bridging ☐ toxic (OEL _____) ☐ _____

AMBIENT CONDITIONS

Room height (lower edge ceiling or tubing) [mm or ''']: _____

Compressed air supply [bar]: _____ Power supply: _____ [Volt] _____ [ph] _____ [Hz]

Ex-proof: ☐ yes ☐ no Ex-Zone: _____ Protection class: IP _____

Material of product touching parts: _____ Downstream system?: _____

Material of non-product touching parts: _____ Surfaces: _____

Ceiling: ☐ runway girder ☐ free standing portal unit ☐ _____

Is a dedusting unit available? ☐ yes ☐ no

Discharging FIBCs
Check list for quotation

CHECK LIST

FIBCS

SUSPENSION SYSTEM

☐ 4 individual loops ☐ 2 sleeve loops

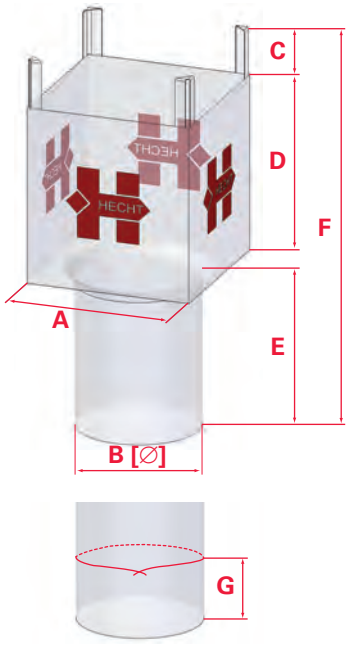
INNER LINER

☐ Without inner liner

☐ Inner liner fixed in outer bag: ☐ yes ☐ no

☐ Customized inner liner: ☐ yes ☐ no

☐ Free tied-off length [mm][**G**]:



WEIGHT/CAPACITY/DIMENSIONS

Max. weight of FIBC [kg]: Discharging capacity [FIBCs/h]:

Dimensions [mm]: **A** **B** **C** **D** **E** **F**

OPTIONS

☐ Automatic restretching while discharging ☐ Extraction protection

Tensioning device for outlet: ☐ manual ☐ pneumatic

WEIGHING SYSTEM (LOSS IN WEIGHT)

Use: ☐ yes ☐ no Weighing range [kg]: Accuracy [+/-]:

DOSING DEVICE

Dosing device: ☐ yes ☐ no Dosing capacity [kg/batch]: [kg/h]:

☐ Screw ☐ Vibration chute ☐ Slide valve ☐ ProClean® Conveyor PCC

☐ Flap ☐ Flexkon dosing device ☐ Rotary valve

CONVEYING AFTER DISCHARGING

Conveying: ☐ yes ☐ no ☐ mechanical ☐ pneumatic

Conveying path [m]: horizontal: vertical:

Conveying capacity: [kg/batch]: [kg/h]:

Operating time: [h/day]:

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HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

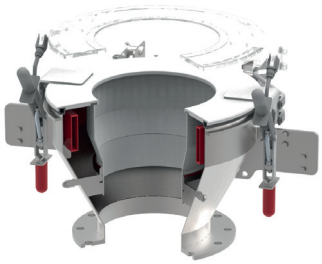
W: www.hecht.eu
E: info@hecht.eu

Discharging FIBCs
Overview of connection systems

HAND OUT

CONNECTION SYSTEMS FOR LOW-DUST WORKING

	Compact connection system CAS	Outlet connection system AAS
Description	Cost-efficient starter version for low-dust FIBC discharging	Connection system for FIBC discharging with double protection against dust leakage
FIBCs	with / without inner liner	with / without inner liner
OEL	1,000 - 5,000 µg/m³	1,000 - 5,000 µg/m³
Products	non-hazardous	non-hazardous
Handout	I-BE 11 en	I-BE 12 en
Dimension Sheet	M-BE 11 en	M-BE 12 en



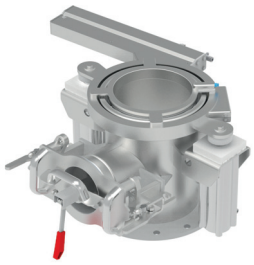
	Outlet connection system with integrated dedusting filter AAS-EF
Description	Connection system with integrated dedusting unit for FIBC discharging (no separate filter required)
FIBCs	with / without inner liner
OEL	1,000 - 5,000 µg/m³
Products	non-hazardous
Handout	I-BE 13 en
Dimension Sheet	M-BE 13 en

OEL: Occupational Exposure Limit

Discharging FIBCs
Overview of connection systems

HAND OUT

CONNECTION SYSTEMS FOR DUST-FREE WORKING



	Liner connection system LAS	Liner connection system LAS-EC „Easy Connect“
Description	Dust-free high-containment connection system for discharging FIBCs	Dust-free high-containment connection system for discharging FIBCs
FIBCs	FIBCs / bins with inner liner	FIBCs / bins with inner liner
OEL	≥ 1 µg/m³	< 1 µg/m³
Products	very hazardous	very hazardous
Handout	I-BE 16 en	I-BE 27 en
Dimension Sheet	M-BE 16 en	M-BE 27 en

	SOLIVALVE ®	Protective liner connection system SAS
Description	Automated connection system with possible metering for low-contamination discharge of FIBCs with integrated conical closure	Dust-free connection system for discharging FIBCs with continuous liner technology and integrated extraction protection
FIBCs	SoliBag® with conical closure	FIBCs / bins with inner liner
OEL	10 - 100 µg/m³	5 - 20 µg/m³
Products	less hazardous	hazardous
Handout	I-BE 14 en	I-BE 15 en
Dimension Sheet	-	M-BE 15 en

OEL: Occupational Exposure Limit

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

Discharging FIBCs
Compact connection system CAS

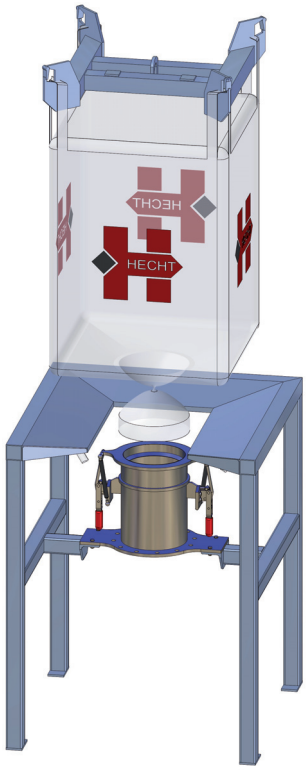
HAND OUT

DESCRIPTION

The **Compact connection system CAS** by HECHT is a cost-efficient starter version for low-dust discharging (up to OEL < 1,000-5,000 µg/m³) of FIBCs (with or without inner liner).

The CAS is designed for handling non-hazardous products in simple industrial, chemical, food or pharmaceutical applications.

HANDLING



The compact connection system distinguishes itself by its easy handling.
For discharging, you just have to pull the closed FIBC outlet over the product tube and fix it using the sealing flange. The latter is possible using the **two-hand lever mechanism**, which makes sure that the operator cannot squeeze his/her fingers between the sealing flange and the product tube in case of proper handling. Then, the FIBC outlet can be opened and the FIBC can be discharged in low-dust mode.

Using an optional **WIP** equipment (**Washing in Place**) with integrated spray nozzle, the CAS can also be cleaned.

Via the suction nozzle, the complete system including the FIBC can be dedusted and/or evacuated.

Simple FIBC discharge station with support and compact connection system CAS

AT A GLANCE

Cost-efficient starter version for low-dust FIBC discharge

Washing with integrated spray nozzle

SCOPE OF DELIVERY

- Connection system (stainless steel or galvanized steel) and sealing flange (stainless steel)
- Suction nozzle
- Fastening (flange, lateral supports or mounting arm on the rear)

OPTIONS

- Ex version
- WIP version with integrated spray nozzle
- Dedusting / Evacuation

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HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

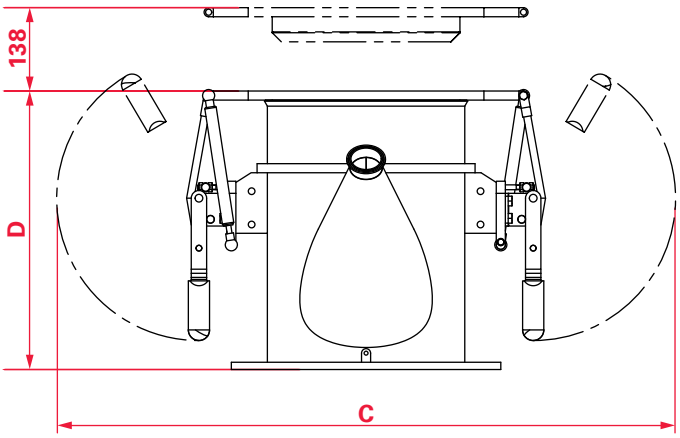
W: www.hecht.eu
E: info@hecht.eu

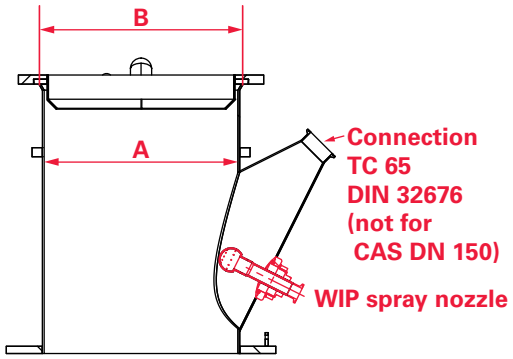
I-BE 11 en

Discharging FIBCs
Compact connection system CAS

DIMEN-SION SHEET

STANDARD DIMENSIONS

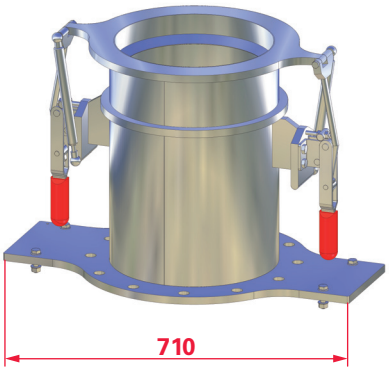




CAS type	Product tube (A) [mm]	Connection ring-Ø (B) [mm]	Operating width (C) [mm]	Height (D) [mm]
150	150	165	850	355
320	320	335	1020	460

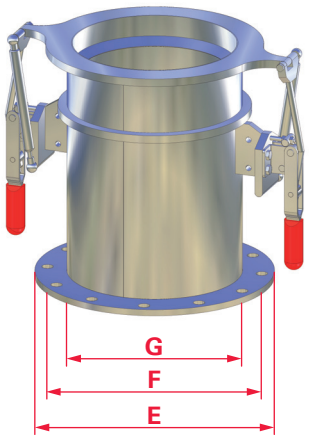
LATERAL SUPPORTS

- Standard version for direct fastening to the frame
- Alternative: Fastening from behind with supporting arms (only for CAS DN 320)



FLANGE

- Version for direct feastening on the following unit (e.g. reactor, container, screw, etc.)



CAS type	Outer Ø (E) [mm]	Hole circle Ø (F) [mm]	Inner Ø / NW (G) [mm]
150	285	240	150
320	445	400	320

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HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

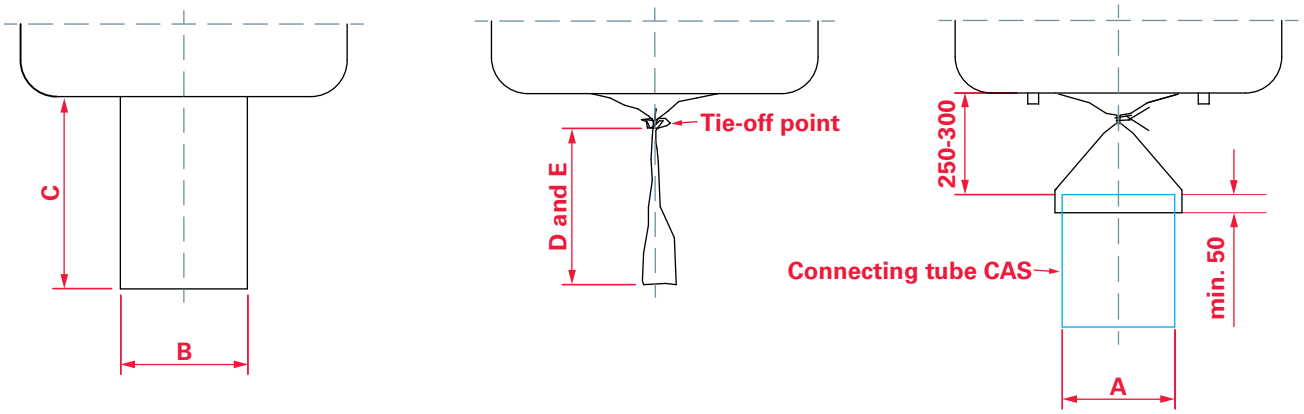
Discharging FIBCs
Compact connection system CAS

DIMEN-SION SHEET

DIMENSIONING FIBC OUTLET

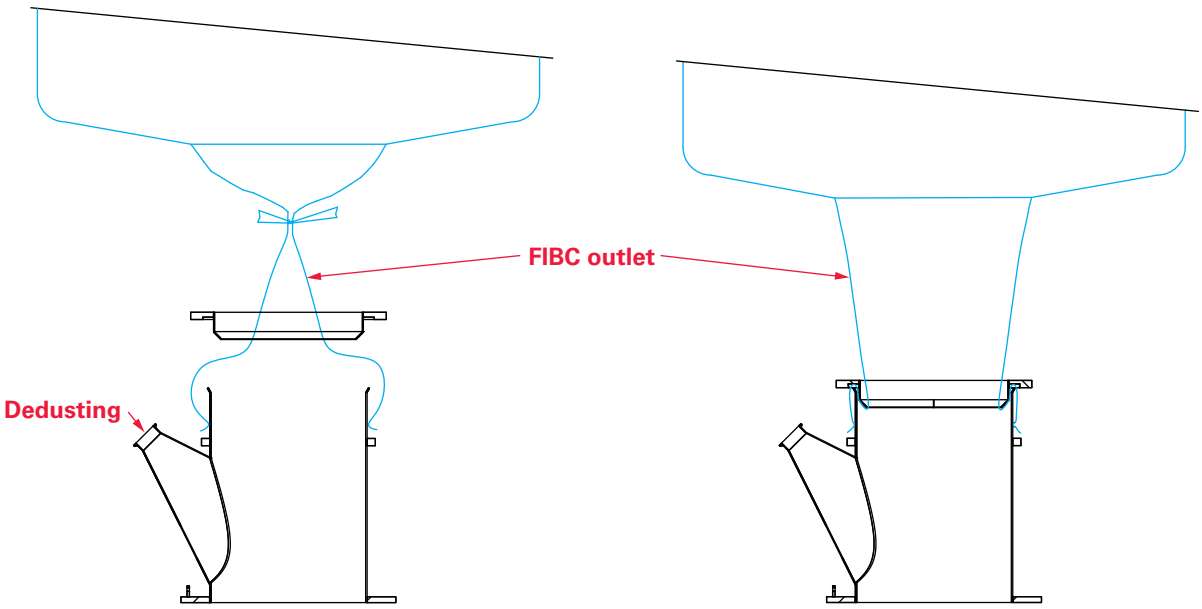
To allow the FIBC to be properly and safely connected to the respective size of the connection ring, both diameter and length of the FIBC outlet must feature certain **minimum dimensions**.

This is due to the fact that, for safe connection, the FIBC outlet is put over the product tube, and the operator additionally requires a working height of 250 to 300 mm.



DIMENSIONS AND SIZES

CAS type	Connection ring Ø (A) [mm]	Ø FIBC outlet (B) [mm]	Recommended length of FIBC outlet (C) [mm]	Recommended length of FIBC outlet after tie-off (D) [mm]	Minimum length of FIBC outlet after tie-off (E) [mm]
150	165	185-350	600	450	400
320	335	350-500	650	450	400



FIBC outlet is put over the connection tube.

FIBC outlet is clamped and sealed.

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HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

Discharging FIBCs
Outlet connection system AAS

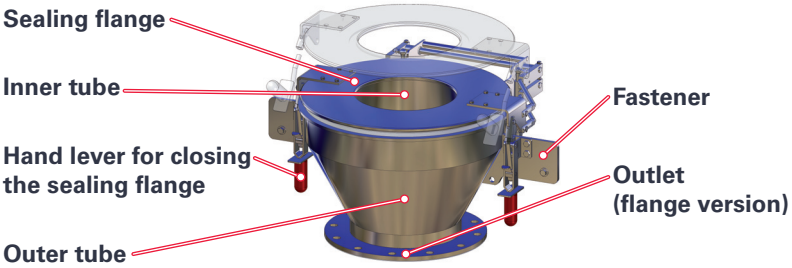
HAND OUT

DESCRIPTION

The **outlet connection system AAS** by HECHT is used for low-dust discharging (up to OEL 1,000 – 5,000 µg/m³) of FIBCs with or without inner liner and features a double protection against dust leakage.

Environment and operator are protected against coarse contamination.

The AAS is used in particular when handling non-hazardous and dusty bulk solids in the chemical, food and pharmaceutical industries.



HANDLING

The outlet connection system distinguishes itself by its easy handling. For discharging, you just have to pull the closed FIBC outlet over the inner tube and fix it using the sealing flange. The latter is possible using the **two-hand lever mechanism**, which makes sure that the operator cannot squeeze his/her fingers between the sealing flange and the outer tube in case of proper handling.

When connecting the FIBC outlet, folds may occur at the inner tube where product can escape.

To prevent this, the **„double ring“** consisting of outer and inner tube serves as **additional protection**. The product will then be collected in this area and fed back to the product flow.

When using FIBCs with different outlet diameters, **the inner tube can be exchanged** (optional) in order to adapt the AAS to the required outlet.

To remove excess air, the entire system including the FIBC can be dedusted and evacuated after discharging via the exhaust connector.

Big Bag discharge station with AAS

AT A GLANCE

Two-hand lever mechanism avoids risk of squeezing

„Double ring“ offers additional protection against dust leakage

Exchangeable inner tube for different FIBC outlets

SCOPE OF DELIVERY

- Connection system (product-touched: stainless steel) and sealing flange (stainless steel or aluminium)
- Exhaust connector
- Outlet: connector, flange or clamp

OPTIONS

- Ex-version
- Filter retrofit kit (see I-BE 73 en)
- Exchangeable inner tube
- Dedusting / evacuation

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HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

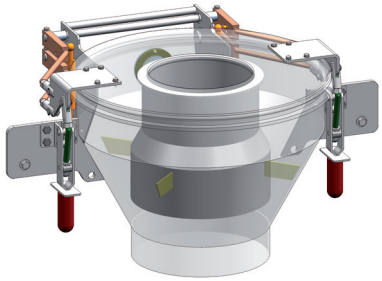
I-BE 12 en

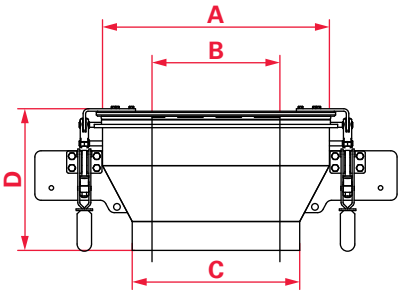
Discharging FIBCs
Outlet connection system AAS

DIMEN-SION SHEET

AAS WITH TUBULAR OUTLET

for all AAS types (A)





AAS 550

Inner tube ∅ (B) [mm]	210	260	310	360

can be combined with the following outlet sizes / heights:

Tubular outlet ∅ (C) [mm]	200	300	400
Height (D) [mm]	530	437	343

AAS 650

Inner tube ∅ (B) [mm]	260	310	360	410	460	510

can be combined with the following outlet sizes / heights:

Tubular outlet ∅ (C) [mm]	300	400	500
Height (D) [mm]	530	434	343

AAS 750

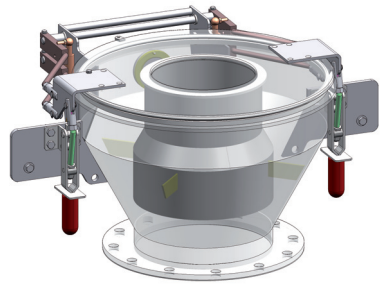
Inner tube ∅ (B) [mm]	460	510	560	610

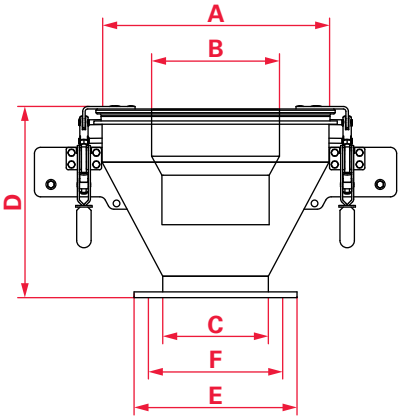
can be combined with the following outlet sizes / heights:

Tubular outlet ∅ (C) [mm]	300	400	500	600
Height (D) [mm]	643	529	434	340

AAS WITH FLANGE OUTLET (ACCORDING TO ISO EN 1092 WITH REDUCED FLANGE THICKNESS)

for all AAS types (A)





AAS 550

Inner tube ∅ (B) [mm]	210	260	310	360

can be combined with the following outlet sizes / heights:

Flange outlet ∅ (C) [mm]	200	300	400
Flange outer ∅ (E) [mm]	340	445	565
Hole circle ∅ (F) [mm]	295	400	515
Height (D) [mm]	514	414	415

AAS 650

Inner tube ∅ (B) [mm]	260	310	360	410	460	510

can be combined with the following outlet sizes / heights:

Flange outlet ∅ (C) [mm]	300	400
Flange outer ∅ (E) [mm]	445	565
Hole circle ∅ (F) [mm]	400	515
Height (D) [mm]	516	414

AAS 750

Inner tube ∅ (B) [mm]	460	510	560	610

can be combined with the following outlet sizes / heights:

Flange outlet ∅ (C) [mm]	300	400
Flange outer ∅ (E) [mm]	445	565
Hole circle ∅ (F) [mm]	400	515
Height (D) [mm]	508	590

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: + 49 8441 - 8956 - 0
F: + 49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

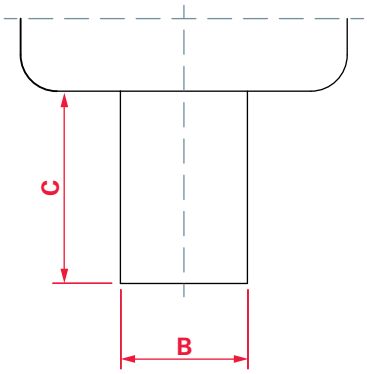
Discharging FIBCs
Outlet connection system AAS

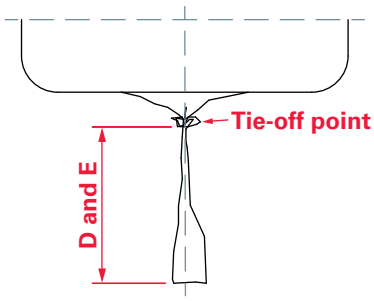
DIMEN-SION SHEET

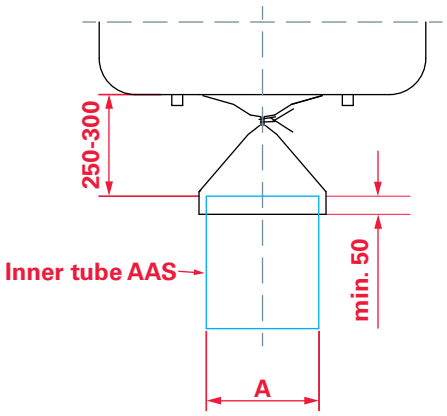
DIMENSIONING FIBC OUTLET

To allow the FIBC to be properly and safely connected to the respective size of the inner tube, both diameter and length of the FIBC outlet must feature certain **minimum dimensions**.

This is due to the fact that, for safe connection, the FIBC outlet is put at least 50 mm over the inner tube, and the operator additionally requires a working height of 250 to 300 mm.

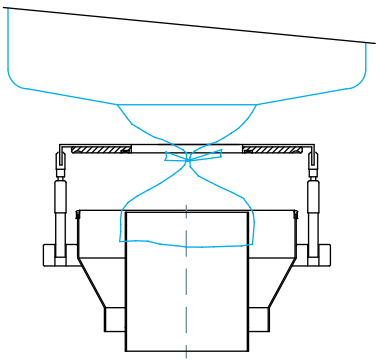




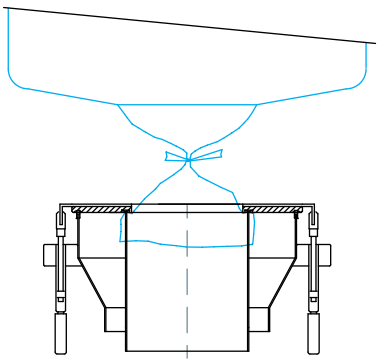


DIMENSIONS AND SIZES

AAS type (Ø)	Inner tube (A) [∅, mm]	FIBC outlet (B) [∅, mm]	Recommended length of FIBC outlet (C) [mm]	Recommended length of FIBC outlet after tie-off (D) [mm]	Minimum length of FIBC outlet after tie-off (E) [mm]
D550	210	250-300	500	350	300
	260	300-350	500	350	315
	310	350-400	550	400	335
	360	400-450	600	400	350
D650	410	450-500	650	400	370
	460	500-550	700	450	390
	510	550-600	750	450	410
D750	560	600-650	800	450	430
	610	650-700	850	500	450



FIBC outlet put over the inner tube.



FIBC outlet clamped and sealed.

Discharging FIBCs
AAS with integrated dedusting filter

HAND OUT

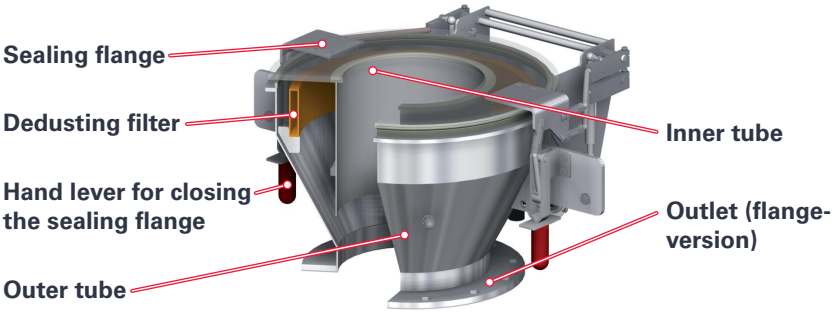
DESCRIPTION

The **outlet connection system with integrated dedusting filter AAS-EF** is the further development of the proven AAS by HECHT.

It is used for low-dust discharging (up to OEL 1,000- 5,000 µg/m³) of slightly hazardous and dusty bulk solids from FIBCs and protects the room against contamination.

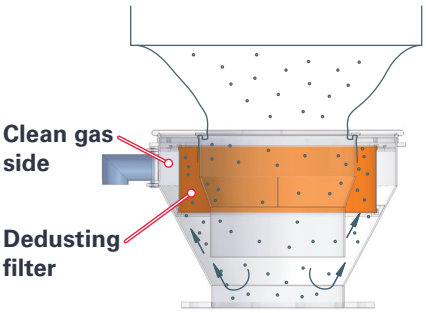
The AAS-EF is preferably used in the chemical, food, and pharmaceutical industries.

Due to the integrated dedusting filter, the acquisition of an external filter unit will no longer be required.



HANDLING

Due to the integrated dedusting filter, no external filter will be required. Compared to the AAS-EF, an external filter involves high acquisition costs and requires valuable space **(space-saving)**.



The integrated dedusting filter makes sure that dusty and dust-free air (clean gas side) are separated, preventing product from getting to the clean gas side or into the extraction.

Time-consuming cleaning of the dedusting unit, product loss and product carryover belong to the past.

In terms of operation, the AAS-EF does not differ from the basic connection system AAS. It is also operated using **two-hand lever mechanism**.

When using FIBCs with different outlet diameters, **the inner tube can be exchanged** (option) in order to adapt the AAS-EF to the outlet diameter of the FIBC used.

AT A GLANCE

Two-hand lever mechanism avoids risk of squeezing

Space and cost saving as no external filter is required

Exchangeable inner tube for different FIBC outlets

SCOPE OF DELIVERY

- Connection system (product-touched: stainless steel) and sealing flange (stainless steel or aluminium)
- Filter cleaning (max. 3-4 bar)
- Outlet: nozzle, flange or clamp
- Dedusting filter
- Pneumatic control

OPTIONS

- Ex-version
- exchangeable inner tube
- extraction / evacuation
  - with suction pipe (DIN EN 10220, Ø 60,3 x 2 mm)
  - and pressure control valve (internal thread 1/4“)

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

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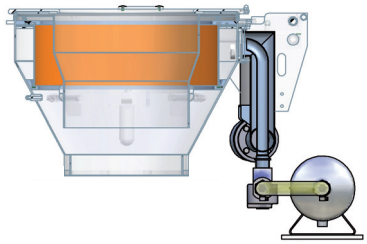
Discharging FIBCs
AAS with integrated dedusting filter

DIMEN-SION SHEET

AAS WITH TUBULAR OUTLET

for all AAS-EF types (A)

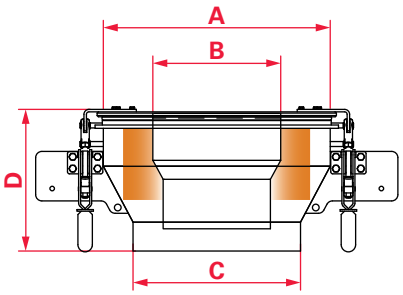


AAS 550

Inner tube ∅ (B) [mm]	210	260	310	360

can be combined with the following outlet sizes / heights:

Tubular outlet ∅ (C) [mm]	200	300	400
Height (D) [mm]	530	437	343



AAS 650

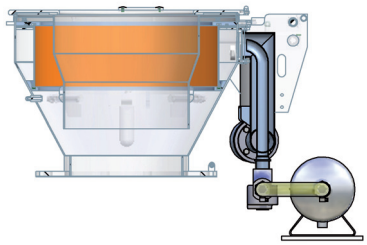
Inner tube ∅ (B) [mm]	260	310	360	410	460	510

can be combined with the following outlet sizes / heights:

Tubular outlet ∅ (C) [mm]	300	400	500
Height (D) [mm]	530	434	343

AAS WITH FLANGE OUTLET (ACCORDING TO ISO EN 1092 WITH REDUCED FLANGE THICKNESS)

for all AAS-EF types (A)

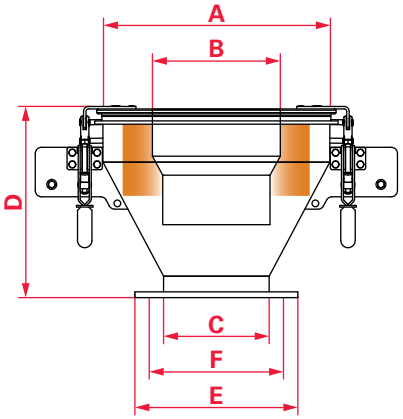


AAS 550

Inner tube ∅ (B) [mm]	210	260	310	360

can be combined with the following outlet sizes / heights:

Flange outlet ∅ (C) [mm]	200	300	400
Flange outer ∅ (E) [mm]	340	445	565
Hole circle ∅ (F) [mm]	295	400	515
Height (D) [mm]	514	414	415



AAS 650

Inner tube ∅ (B) [mm]	260	310	360	410	460	510

can be combined with the following outlet sizes / heights:

Flange outlet ∅ (C) [mm]	300	400
Flange outer ∅ (E) [mm]	445	565
Hole circle ∅ (F) [mm]	400	515
Height (D) [mm]	516	414

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: + 49 8441 - 8956 - 0
F: + 49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

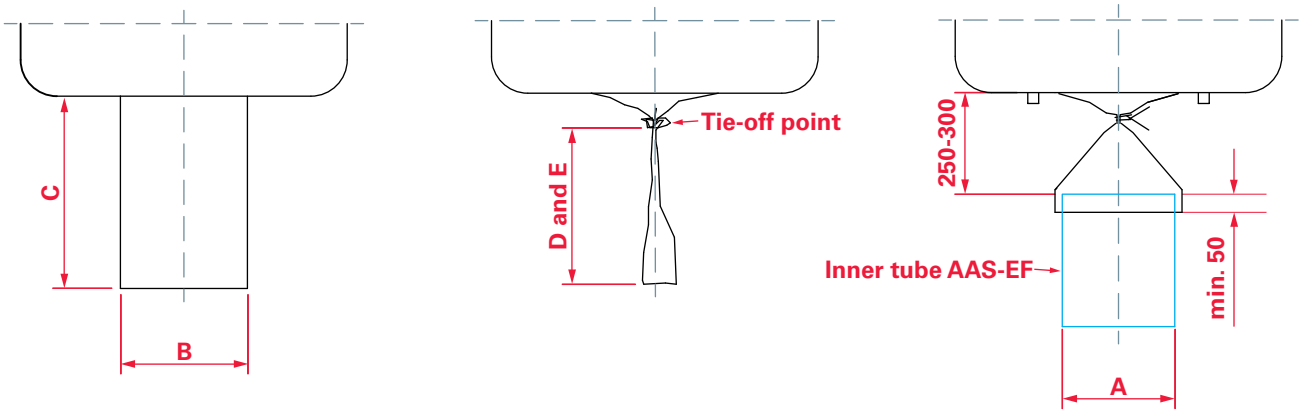
Discharging FIBCs
AAS with integrated dedusting filter

DIMEN-SION SHEET

DIMENSIONING FIBC OUTLET

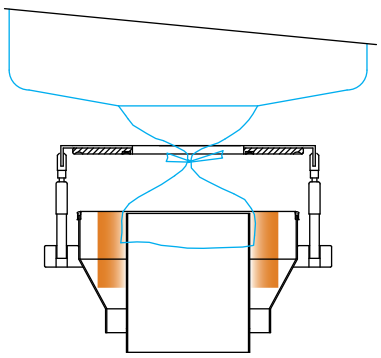
To allow the FIBC to be properly and safely connected to the respective size of the inner tube, both diameter and length of the FIBC outlet must feature certain **minimum dimensions**.

This is due to the fact that, for safe connection, the FIBC outlet is put at least 50 mm over the inner tube, and the operator additionally requires a working height of 250 to 300 mm.

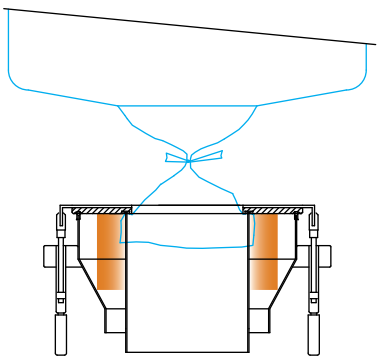


DIMENSIONS AND SIZES

AAS-EF type (Ø)	Inner tube (A) [∅, mm]	FIBC outlet (B) [∅, mm]	Recommended length of FIBC outlet (C) [mm]	Recommended length of FIBC outlet after tie-off (D) [mm]	Minimum length of FIBC outlet after tie-off (E) [mm]
D550	210	250-300	500	350	300
	260	300-350	500	350	315
	310	350-400	550	400	335
D650	360	400-450	600	400	350
	410	450-500	650	400	370
	460	500-550	700	450	390



FIBC outlet put over the inner tube.



FIBC outlet clamped and sealed.

Discharging FIBCs
SoliValve® Split-cone System

HAND OUT

DESCRIPTION

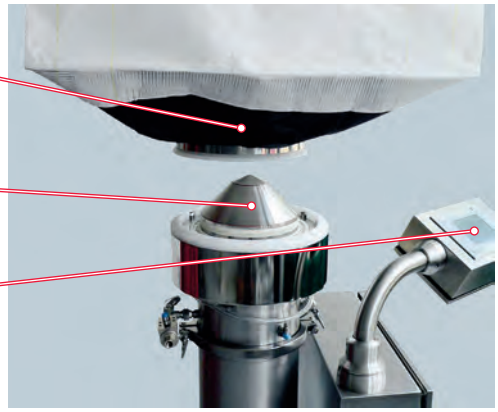
The **SoliValve® Split-cone System** by HECHT enables fully automatic, low-contamination as well as contained discharging and dosing (up to OEL 10-100 µg/m³) of slightly hazardous products from special FIBCs with conical closure (SoliBag®).

For this purpose, a passive split-cone valve is fit into the FIBC bottom so that it can be automatically docked to the active part (Soli-Valve® active valve).

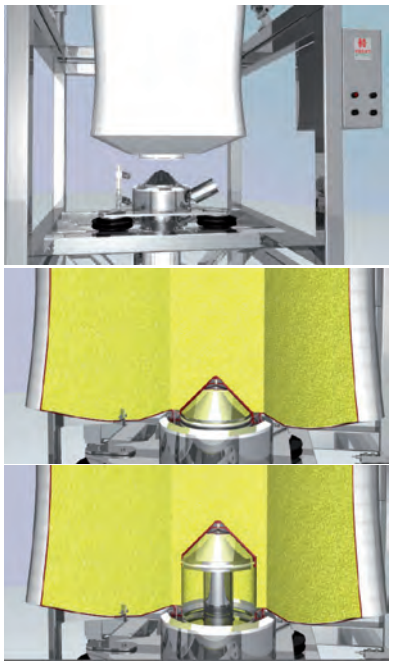
The system is therefore particularly suited for chemical, food and pharmaceutical applications as well as for avoiding cross-contamination.

In addition, using Soli-Bags® is an economical alternative to using containers / IBCs.

Soli-Bags® can be reused up to 20 times.



HANDLING



Automatic connection and discharge by means of the integrated discharge aid (lifting and lowering of the conical closure)

Automatic connection of the SoliBags® using the SoliValve® split-cone system not only makes working easier for the operator, but also requires **less ceiling height**, as docking is possible at ground level.

The **integrated discharge aid** facilitates discharging of poor-flowing bulk material by lifting and lowering the conical closure. An optional supply of air or inert gas provides for fluidization of the product at the outlet.

By controlling the active valve, product can be **dosed** from the FIBC. In the case of **partial discharge,** the SoliBag® is closed again by the integrated conical closure after disconnection and can be connected again and discharged at a later point in time.

CIP nozzles (Cleaning in Place) and a cleaning cover allow for hygienic cleaning of the entire connection system.

AT A GLANCE

Automatic connection of the SoliBag® at the push of a button

Dosing and partial discharge possible

SCOPE OF DELIVERY

- SoliValve® active valve (stainless steel)
- SoliBag® with passive split-cone valve
- Control
- SoliValve® support table
- Mechanical or pneumatic discharge aid

OPTIONS

- Ex-version
- CIP-version
- gravimetric metering control
- Fluidization
- N_2-blanketing

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

I-BE 14 en

Discharging FIBCs
Protective liner connection system SAS

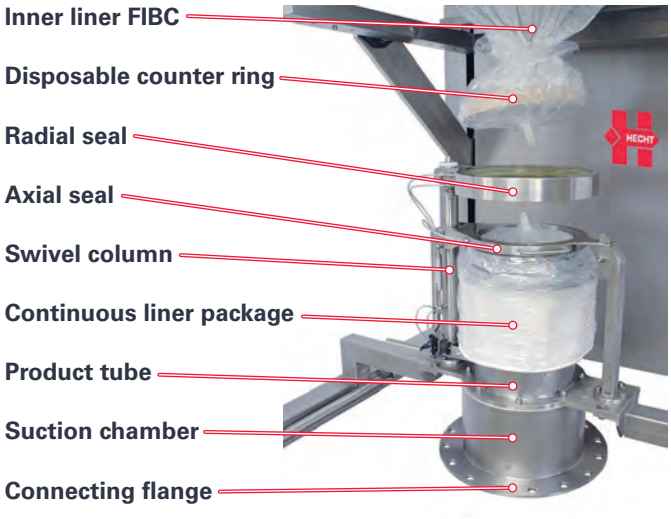
HAND OUT

DESCRIPTION

The **protective liner connection system SAS** by HECHT permits dust-free and contained discharging (up to OEL 5-20 µg/m³) of FIBCs and other bins with inner liner by means of continuous liner technology. Thus, operator, environment and product are protected against contamination from outside.

The SAS is used in particular when handling hazardous products and for demanding applications in the chemical, food, and pharmaceutical industries.

In addition to FIBCs, it is also possible to connect mini bags, drums, or containers / IBCs (adapter required).



HANDLING

The continuous protective liner enables **contained and contamination-free connection and discharge**. Even when no FIBC is connected, the product tube is closed by the protective liner.

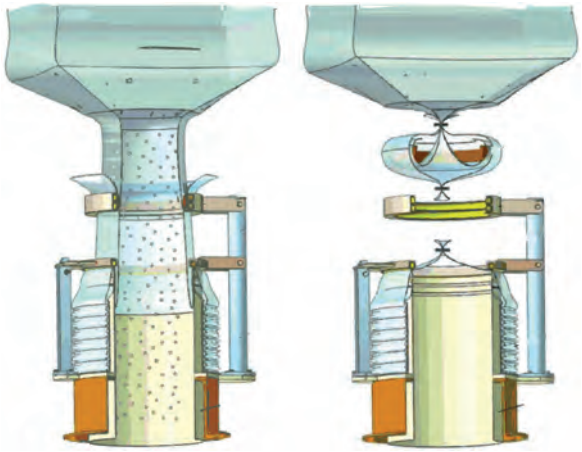
The folded **continuous liner package** is a liner dispenser (up to 30m) that permits the connection of several FIBCs and requires only little storage space.

Its replacement is contamination-free, too.

The SAS can be equipped with an **extraction protection** (option).

Automatic retightening prevents the FIBC outlet from being unintentionally pulled out of the connection system, e.g. when lifting the FIBC by means of the chain hoist.

Besides, the SAS can be cleaned using an optional **WIP hood** (Washing in Place).



SAS during (left) and after discharge (right)

AT A GLANCE

Extraction protection prevents unintentional pulling out of the FIBC outlet

Closed and safe handling due to protective liner

SCOPE OF DELIVERY

- Connection system SAS (product-touched: stainless steel)
- Mounting (on flange or at lateral supports)
- Expendables (continuous liner package, disposable counter ring, clamping ring, liner clips)

OPTIONS

- Ex-version
- WIP-version with spray nozzle
- Extraction / evacuation
- Extraction protection (electric or pneumatic) inclusive adjustment of the lifting device

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

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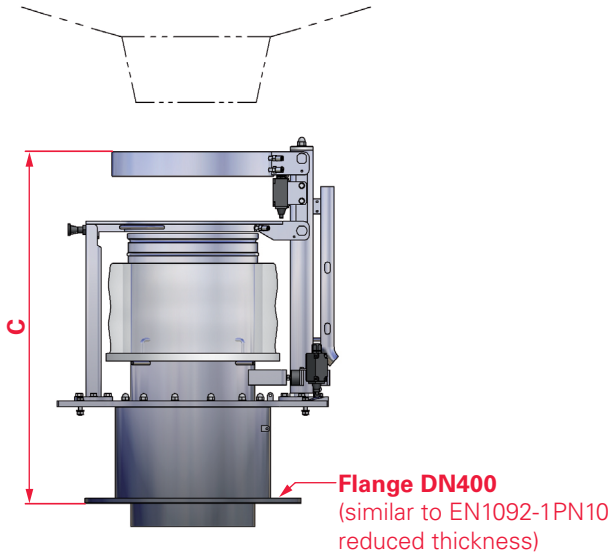
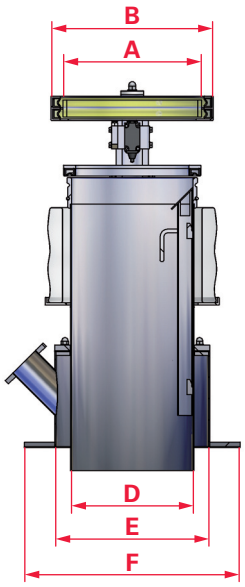
Discharging FIBCs
Protective liner connection system SAS

DIMEN-SION SHEET

STANDARD DIMENSIONS

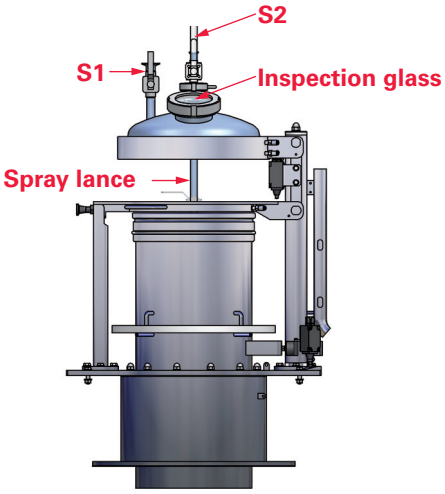


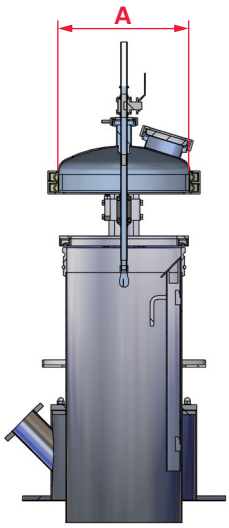


SAS type	Disposable counter ring (A) [Ø, mm]	Radial seal (B) [Ø, mm]	Height (C) [mm]	Inner Ø (D) [mm]	Hole circle Ø (E) [mm]	Outer Ø (F) [mm]
270	270	330	920	320	400	565
365	365	425	920	320	400	565

OPTION: SAS-WIP

The optional WIP hood (Washing in Place) can be used for prewashing of the SAS. Instead of the disposable counter ring, the WIP hood is clamped into the radial seal.





SCOPE OF DELIVERY

- WIP hood
- Spray lance
- Inspection glass DN100 (only for type 365)
- N_2 connection (optional)

SAS type	WIP hood (A) [Ø, mm]	Spray lance connection (S1) clamp connection BS 4825	N_2 connection (optional) (S2) clamp connection BS 4825
270	270	3/4“	1“
365	365	3/4“	1“

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: + 49 8441 - 8956 - 0
F: + 49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

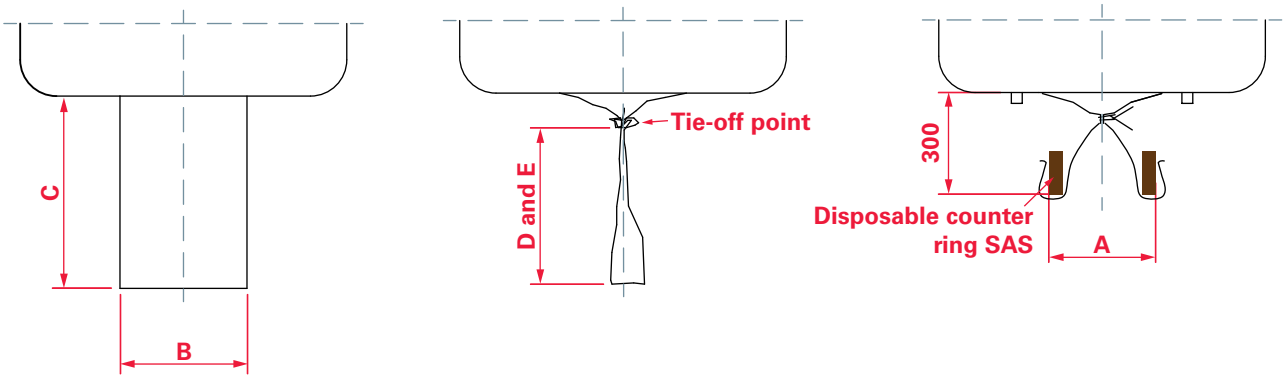
Discharging FIBCs
Protective liner connection system SAS

DIMEN-SION SHEET

DIMENSIONING FIBC OUTLET

To allow the FIBC to be properly and safely connected to the SAS, both diameter and length of the FIBC outlet must feature certain **minimum dimensions**.

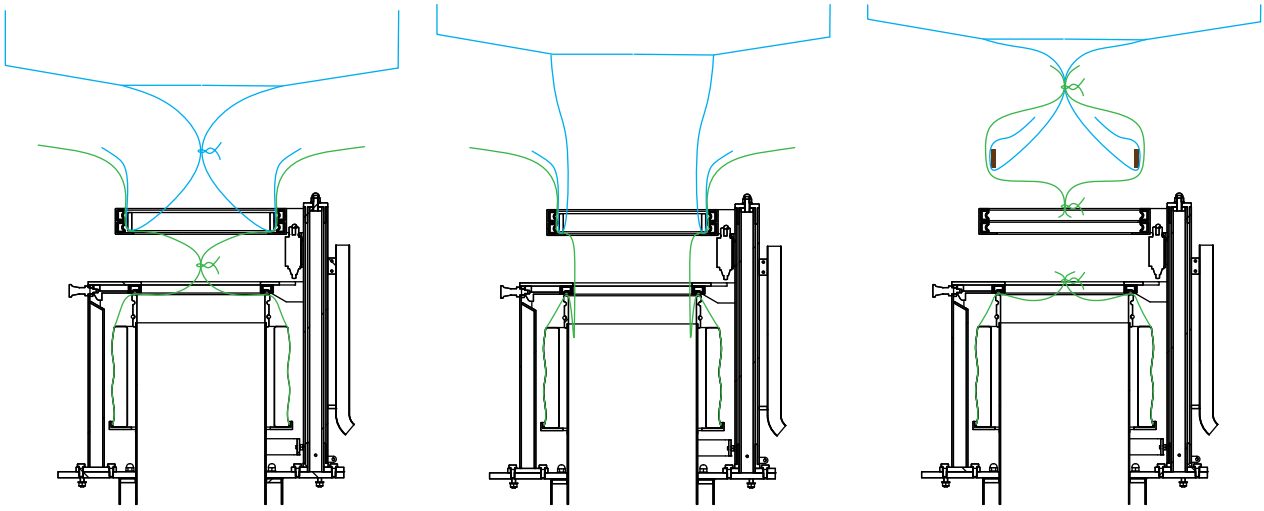
This is due to the fact that, for safe connection, the FIBC outlet must be put around the disposable counter ring, and the operator additionally requires a working height of 300 mm.



DIMENSIONS AND SIZES

SAS type	Disposable counter ring (A) [Ø, mm]	FIBC outlet (B) [Ø, mm]	Recommended length of FIBC outlet (C) [mm]	Recommended length of FIBC outlet after tie-off (D) [mm]	Minimum length of FIBC outlet after tie-off (E) [mm]
270	270	300-400	650	450	400
365	365	380-500	650	450	400

CLOSED DISCHARGING



FIBC outlet inserted into counter ring and sealed with radial seal.

Lace fastening loosened. FIBC is discharged.

FIBC outlet tied off with counter ring and protective liner and undocked. FIBC and product tube remain closed.

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

Discharging FIBCs
Liner connection system LAS

HAND OUT

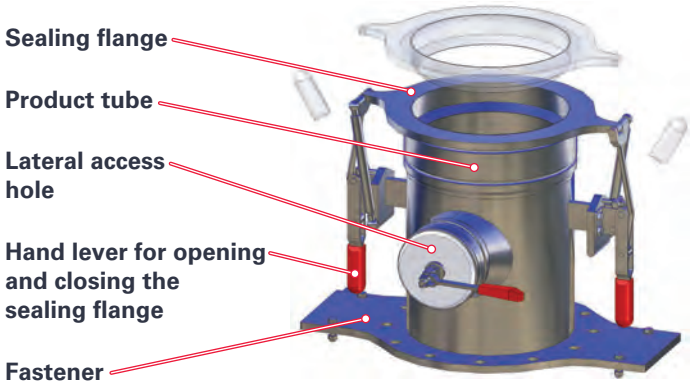
DESCRIPTION

The **liner connection system LAS** by HECHT enables dust-free high-containment discharging (up to OEL ≥ 1 µg/m³) of FIBCs and other bins with inner liner. Thus, operator, environment and product are protected against contamination from outside.

The high containment, even when changing the FIBC, is possible by the use of protective liners.

The LAS is used in particular when handling very hazardous products and for more demanding applications in the chemical, food, and pharmaceutical industries, e.g. for avoiding cross-contamination.

In addition to FIBCs, it is also possible to connect mini bags, drums, or containers / IBCs (adapter required).



HANDLING

FIBC discharge station with liner connection system LAS

Despite **easy handling** by means of two-hand lever mechanism, the liner connection system can be used **in the high-containment area as well**. A protective liner closes both the product tube and the lateral access hole even when no FIBC is connected.

For discharge, the inner liner of the FIBC is connected directly at the product tube by means of a connecting ring. Then, a liner bag is fastened at the lateral access hole, which permits contamination-free removal of the shower cap of the FIBC connected before at the opening of the product tube.
Finally, the sealing flange is closed, and the FIBC outlet can be opened for discharge.

Besides, an optional WIP- or CIP-version (Washing / Cleaning in Place) permits the LAS to be washed and hygienically cleaned.

AT A GLANCE

Product and operator protection, even when handling very hazardous products

Cleaning with hygienic CIP or WIP version

SCOPE OF DELIVERY

- Connection system (Stainless steel or galvanized steel) and sealing flange (stainless steel)
- Suction nozzle
- Mounting (flange, side supports or mounting arms)
- Expendables (connecting rings, extraction bags, liner clips)

OPTIONS

- Ex-version
- WIP-version with hood and spray nozzle
- CIP-version with hood and spray nozzles
- Dedusting / evacuation

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

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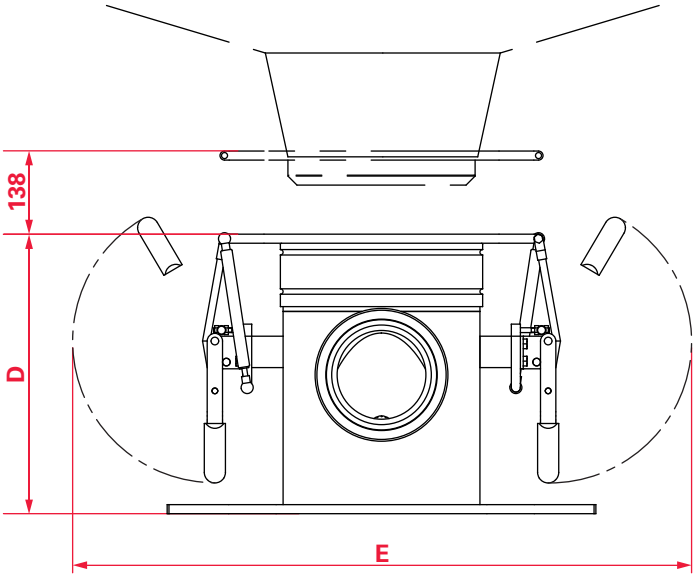
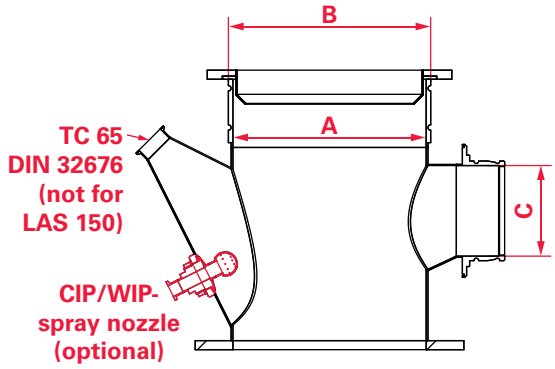
Discharging FIBCs
Liner connection system LAS

DIMEN-SION SHEET

STANDARD DIMENSIONS

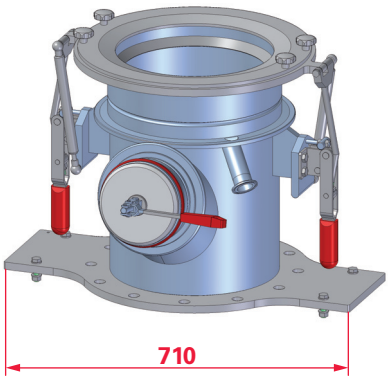




LAS type	Product tube (A) [mm]	Connection ring Ø (B) [mm]	Access hole (C) [Ø, mm]	Height (D) [mm]	Operating width (E) [mm]
150	150	165	150	355	850
320	320	335	150	460	1020

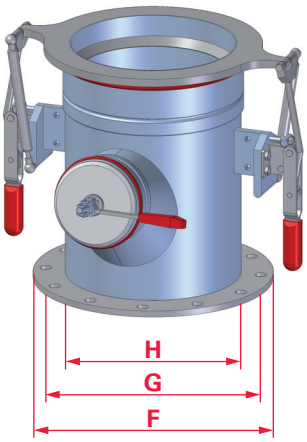
LATERAL SUPPORTS

- Standard version for direct fastening to the frame
- Alternative: Fastening from behind with supporting arms (only for LAS DN 320)



FLANGE

- Version for direct fastening on the following unit (e.g. reactor, container, screw, etc.)



LAS type	Outer Ø (F) [mm]	Hole circle Ø (G) [mm]	Inner Ø / NW (H) [mm]
150	285	240	150
320	445	400	320

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

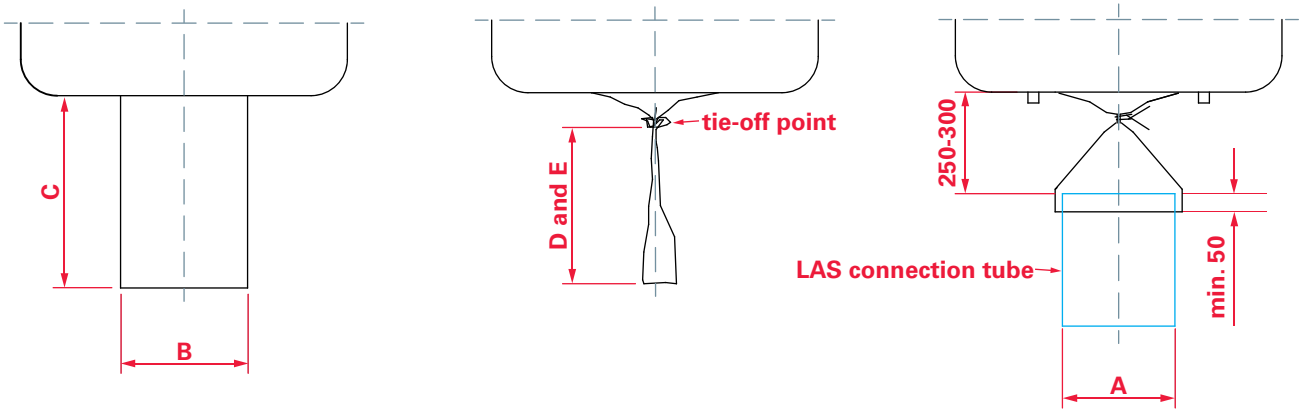
Discharging FIBCs
Liner connection system LAS

DIMEN-
SION
SHEET

DIMENSIONING FIBC OUTLET

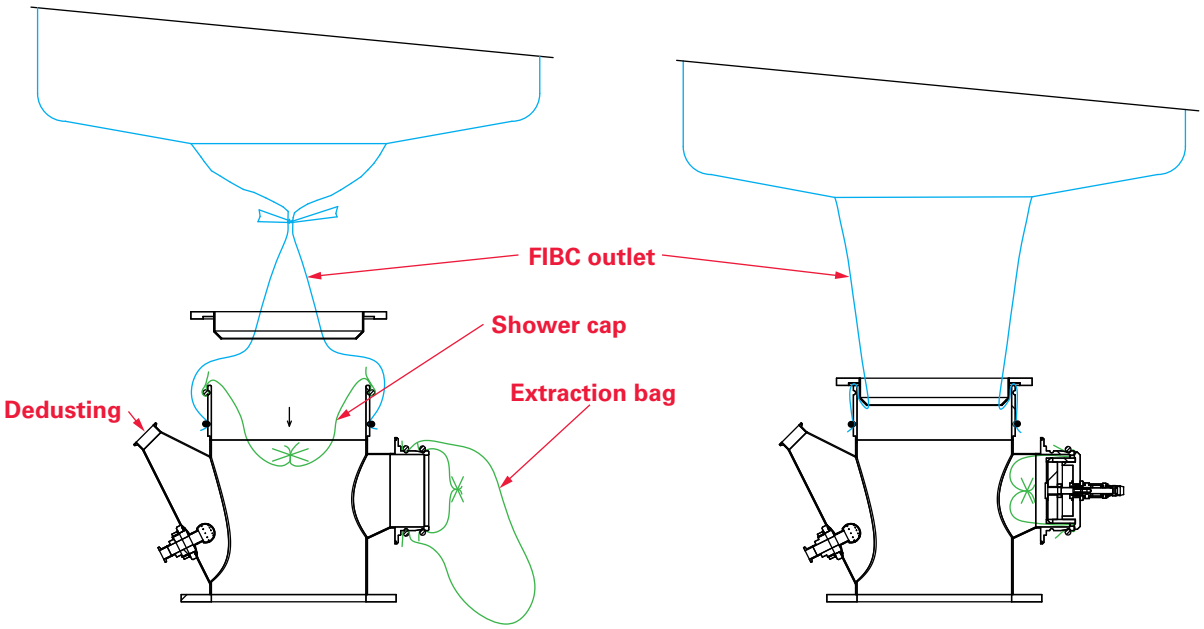
To allow the FIBC to be properly and safely connected to the respective size of the LAS connection tube, both diameter and length of the FIBC outlet must feature certain **minimum dimensions**.

This is due to the fact that, for safe connection, the FIBC outlet is fastened to the product tube using a connection ring (seal), and the operator additionally requires a working height of 250 to 300 mm.



DIMENSIONS AND SIZES

LAS type	Connection ring (A) [Ø, mm]	FIBC outlet (B) [Ø, mm]	Recommended length of FIBC outlet (C) [mm]	Recommended length of FIBC outlet after tie-off (D) [mm]	Minimum length of FIBC outlet after tie-off (E) [mm]
150	165	185-350	600	450	400
320	335	350-500	650	450	400

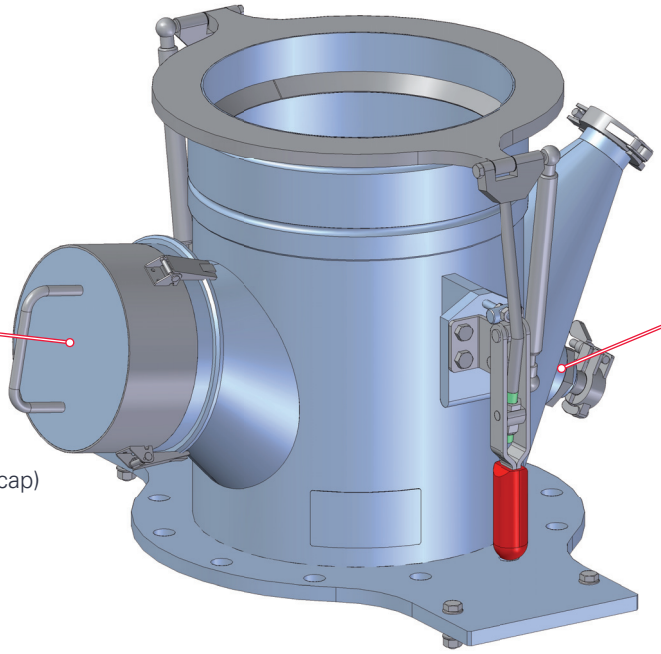


The FIBC outlet is fastened to the product tube using the connection ring. The product tube is still closed by a shower cap.

The FIBC is safely connected and the lateral access hole is closed again.

WIP VERSION

For washing (Washing in Place) the liner connection system with integrated spray nozzle and hood for covering the access hole.



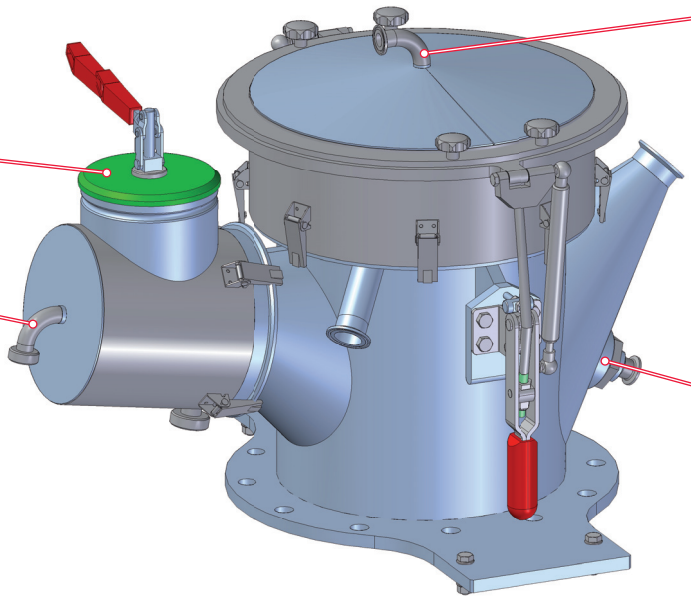
Cover for access hole

- as mechanical protection
- against formation of water pockets (shower cap)

Integrated spray nozzle (spray head) TC20 DIN 32676

CIP VERSION

For full hygienic cleaning (Cleaning in Place) of the liner connection system with integrated spray nozzle, covers for access hole and product tube as well as drain.



Integrated spray nozzle (spray head) sealing flange

Removal of shower cap

Integrated spray nozzle (spray head) access hole

Integrated spray nozzle (spray head) product tube

Discharging FIBCs
Liner-Connection-System LAS-EC „Easy Connect“

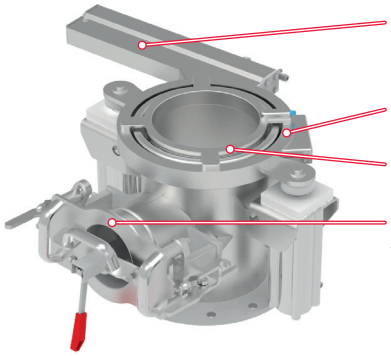
HAND OUT

DESCRIPTION

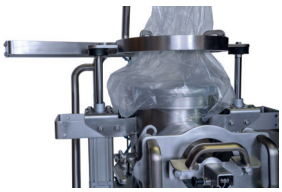
HECHT Technologie's **Liner-Connection-System LAS-EC „Easy Connect“** (patent-pending) enables a defined, safe discharging of FIBCs with a logical operating procedure in just a few steps up to a Containment level of **OEB 5 (OEL < 1 µg/m³)**. Tailor-made to suit your discharging processes and requirements, the system allows an easy, ergonomic and especially safe discharging of powders. Thereby, operator, environment and product are consequently protected from contamination and impurities.

The LAS-EC is characterized by a high operational safety as well as its simple handling during the discharging process. An exchange of the FIBCs takes place without any supporting materials or consumables like o-rings or similar aids.

The system is easy to handle due to a control system with three functions: **Connecting, Sealing and Disconnecting**.



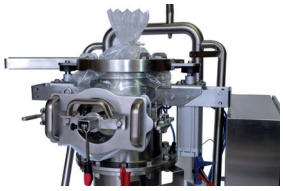
FUNCTIONAL DESCRIPTION



1. Docking/Connecting the FIBC

To connect a FIBC, the port is opened and the shower cap of the previous FIBC seals the port using a special clamping device.

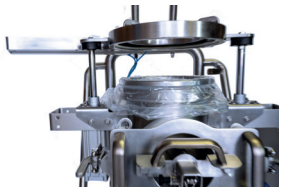
The new liner can now be pulled over the sealing flange connection. After that the port will be closed and the new liner will be fixed automatically. Now the showercap can be removed using the lateral port and the big bag can be opened.



2. Sealing

The bulk material can now be emptied by gravity. If required, a suction shoe can of course be integrated for connection to a vacuum conveyor.

After emptying the FIBC, the liner is tied up and cut off using the HECHT High Containment Closing System between the FIBC outlet and the sealing flange.



3. Closing/Disconnecting the FIBC

This technology ensures protection of operator as well as the product from unwanted product exit (or entry as well). The cycle can now start again and a new FIBC can be connected.

AT A GLANCE

Operator- and Product Protection

WIP - in Hygienic Design

Unique, Patent Pending

ADVANTAGES

- FDA approval
- Design according to GMP-guideline
- For FIBC's with outlet Ø 370-520 mm
- Dedusting / evacuation via socket
- Integration in various stations
- Quick FIBC and bin change
- Reduction of consumables such as O-rings

OPTIONS

- Ex-version
- WIP equipment available
- Various materials, sealing materials and surface qualities
- Different mounting options
- Control: electropneumatic or pneumatic

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

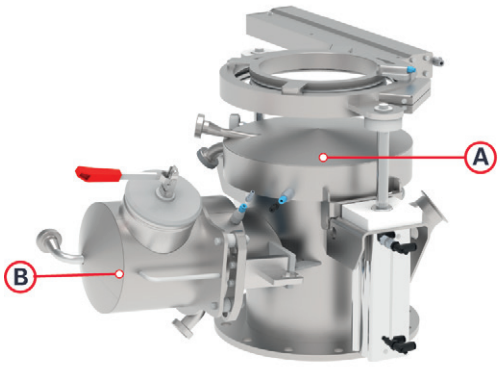
W: www.hecht.eu
E: info@hecht.eu

I-BE 27 en

Big Bag Discharging
LAS-EC „Easy Connect“ WIP-Accessories

HAND OUT

DESCRIPTION



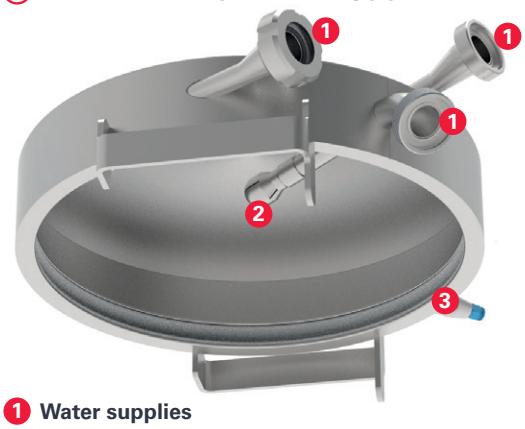
With the optional **WIP-Accessories** for the **LAS-EC** the connection system can easily and safely be cleaned. In order to receive the best result the connection system may need an additional manual selective subsequent cleaning for hygienical tidiness.

A manual cleaning of the system via evaporation or hot air drying is easily possible. Afterwards, the system is immediately ready for operation.

DETALS - ACCESSORIES

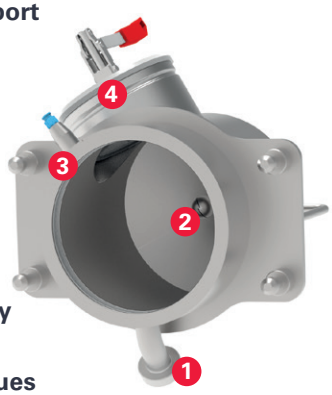
The WIP accesoory is mounted to the liner connection system LAS-EC by means of a tool-free mechanic assembly. Both WIP-hoods (A/B) of the lateral port and the product filling pipe are being fastened and sealed with pneumatic inflatable seals. The system is continuously kept closed, therefore a contamination of the immediate surroundings is impossible. The remaining „Shower Caps“ can be removed and the cleaning process can be started. Integrated WIP-nozzles spray and clean the complete parts in contact with the LAS-EC. Cleaning time and temperature as well as the medium with potential additives need to be customized to the respective product in order to achieve the best possible result. Afterwards the system can be re-opened without restrictions. Depending on the cleaning validation, further steps such as a manual subsequent cleaning can now take place.

A WIP-hood for the product filling pipe



1. **Water supplies**
2. **WIP-nozzle**
3. **Inflatable seal and compressed air supply**

B WIP-Hood for lateral port



1. **Water connection**
2. **WIP-nozzle**
3. **Inflatable seal and compressed air supply**
4. **Liner port for the removal of liner residues**

AT A GLANCE

Simple and safe cleaning

Time saving compared with manual cleaning

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

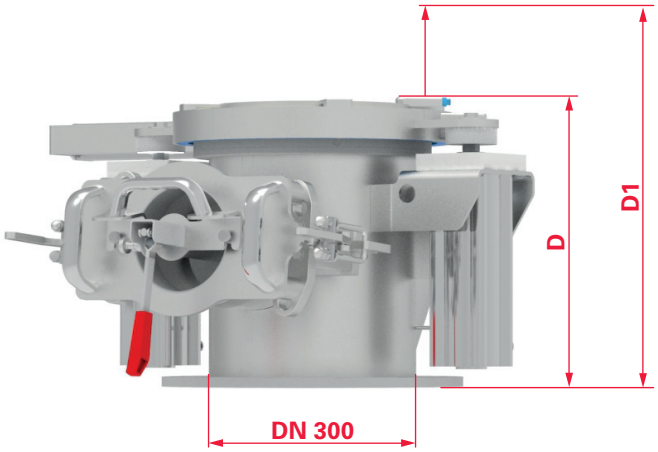
W: www.hecht.eu
E: info@hecht.eu

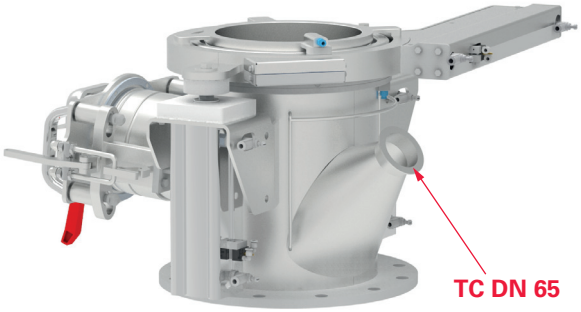
Subject to technical modifications!
I-BE 27 WIP

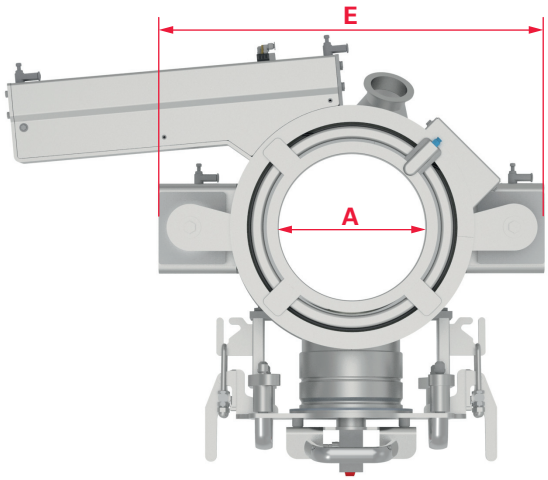
Discharging FIBCs
Liner connection system LAS-EC „Easy Connect“

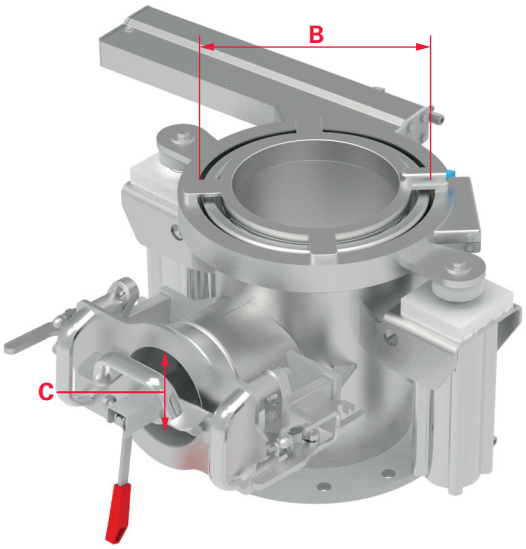
DIMEN-SION SHEET

STANDARD DIMENSIONS









Product Tube (A) [Ø, mm]	Sealing Flange (B) [Ø, mm]	Lateral Port (C) [Ø, mm]	Height (D / D1) [mm]	Width (E) [mm]
250	355	170	450/610	670

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: + 49 8441 - 8956 - 0
F: + 49 8441 - 8956 - 56

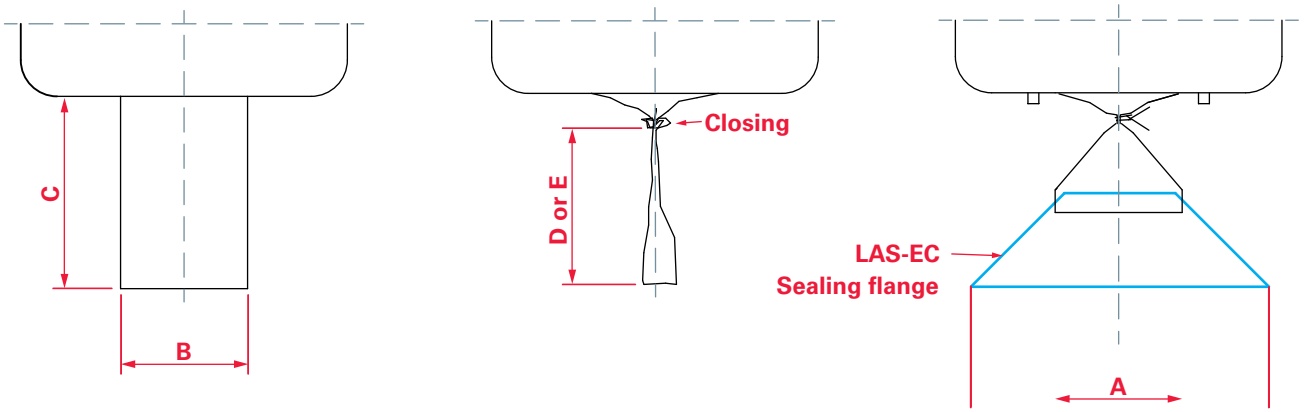
W: www.hecht.eu
E: info@hecht.eu

Discharging FIBCs
Liner connection system LAS-EC „Easy Connect“

DIMEN-SION SHEET

DIMENSIONING FIBC OUTLET

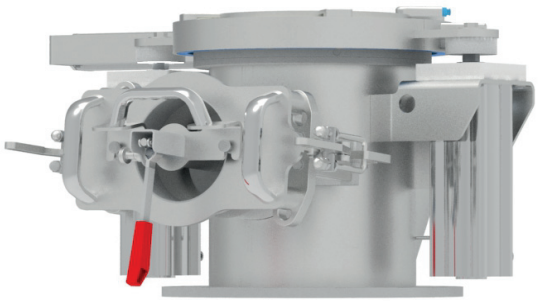
To allow the FIBC to be properly and safely connected to the respective size of the LAS-EC sealing flange, both diameter and length of the FIBC outlet must feature certain **minimum dimensions**.

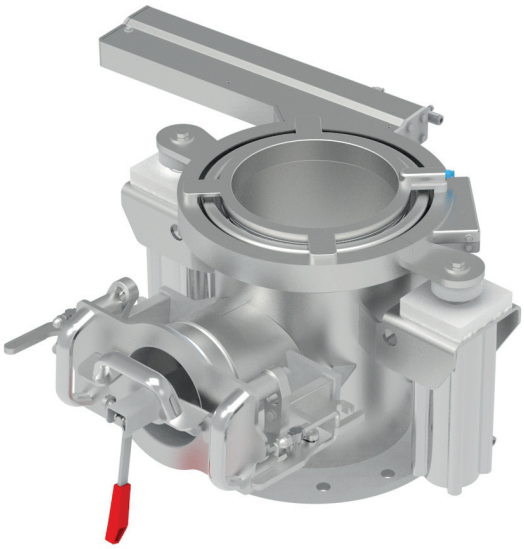


DIMENSIONS AND SIZES

Sealing Flange (A) [Ø, mm]	FIBC Outlet (B) [Ø, mm]	Recommended Length of FIBC Outlet (C) [mm]	Recommended Length of FIBC Outlet after Tie-off (D) [mm]	Minimum Length of FIBC Outlet after Tie-off (E) [mm]
355	370-520	650	550	500*

***shorter FIBC outlets on request**





SMEPAC Report
Liner-Connection-System LAS-EC „Easy Connect“

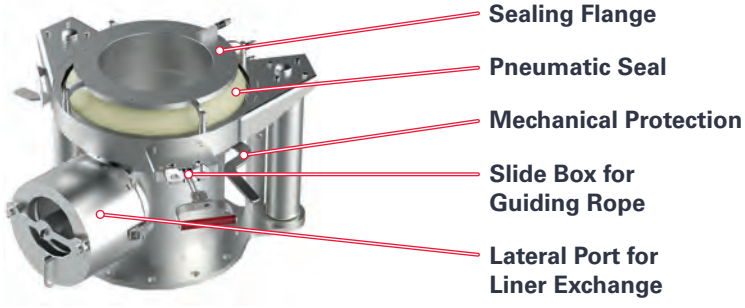
HAND OUT

DESCRIPTION

The **liner connection system LAS-EC "Easy Connect"** (patent pending) from HECHT enables a defined, secure Emptying of FIBC´s with logical operating sequence in a few steps with a high containment level.
Tailored to your emptying processes and requirements, the system allows easy, ergonomic and above all safe discharge of powders.
This protects the operator, the environment and the product from contamination from outside.

The LAS-EC is characterised by a high level of work safety and easy operation during emptying.
The FIBC´s can be changed without auxiliary or consumable materials such as O-rings or similar.

Operation is uncomplicated thanks to a pneumatic control system with the **docking, sealing and undocking** functions.



TÜV-REPORT: 2883512-2 11.03.2019

Task:

Leak testing by determining the concentration of lactose in the environment while emptying FIBC´s using a discharge station and the liner connection system LAS-EC.

Description:

Approximately 300 kg lactose (Sorbolac®400 screen residue 32µm<10%) is emptied from a FIBC with inliner via the LAS-EC-420 and fed into a suction shoe. The subsequent further transport takes place pneumatically via a connected vacuum conveyor ProClean Conveyor PCC200.

The system was operated without extraction with a false air filter (filter element Ultrapolyplea PP 10/3 P7 5µm). The measurement of the lactose concentration at several defined points of the working environment was done three times in total, based on the ISPE guidelines.

Result:

The LAS-EC already reaches OEB 4 (1 to 10 µg/m³) during operation without vacuum. In operation with additional vacuum, this can be exceeded.

AT A GLANCE

Maximum safety through reproducible and independent investigations

Responsible handling of employees through high containment

SPECIFICATION

- Material connection system: stainless steel 1.4404
- Various sealing materials: Silicone, EPDM, TPE
- Dedusting socket: DN 65 TriClamp
- Lateral port Ø 150 mm with endless liner (Ø 255/15m)
- For BigBags with outlet Ø 360 mm - 650 mm
- FIBC outlet after tie-off > 500 mm
- System outlet Ø DN 300

FEATURES

- Suitable for all Ex-Zone
- FDA-compliance
- WIP/CIP-design with cap and spray nozzle (optional)
- Design according to GMP-guideline
- Dedusting / evacuation via socket
- Various mounting methods:
  (flange, lateral support or arm mounts)

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

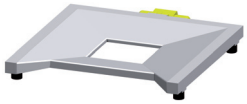
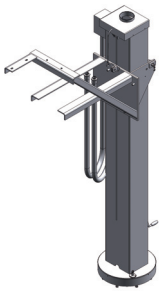
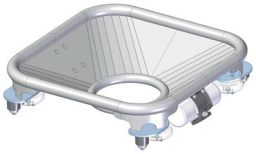
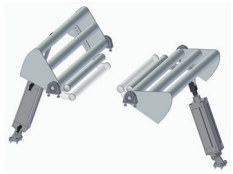
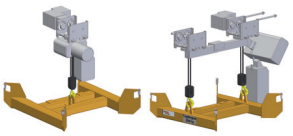
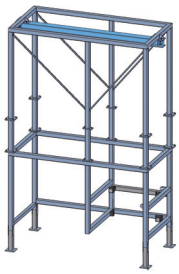
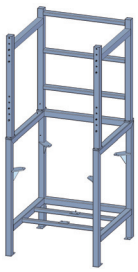
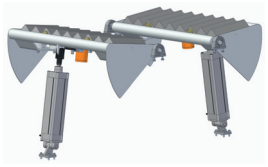
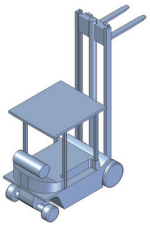
W: www.hecht.eu
E: info@hecht.eu

I-BE 18 en

Discharging FIBCs
Basic framework for FIBCs

HAND OUT

OVERVIEW

	Frames	FIBC Supports	Lifting Devices
Tables	 Standard Table	 Support table (SAT)  Support table - vibration (SAT-V)	 Lifting column  Runway girder + Holding fixtures + chain hoists
Gantries	 Cantilever gantry with runway girder	 Support table with vibration crusher (SAT-VB)  Support table - massaging paddles (SAT-W)	 Holding fixtures + chain hoists
	 Bridge gantry with runway girder		
Modules	 Modular frame	 Support table - massaging paddles with vibration (SAT-WV)  Massaging device (pushers)	 Forklift (chain hoist possible)

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

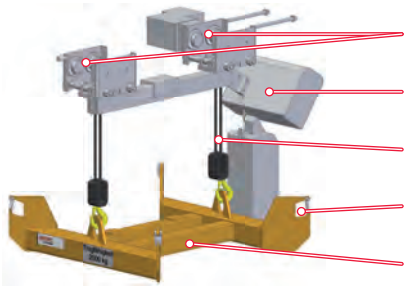
I-BE 30 en

Discharging FIBCs
Lifting devices: Holding fixtures and chain hoists

HAND OUT

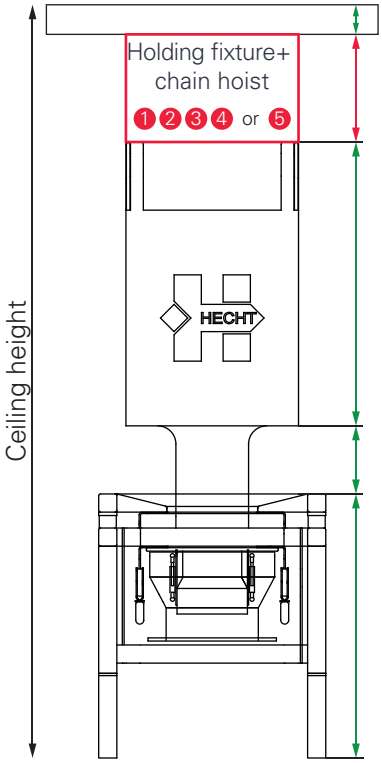
DESCRIPTION

The standard lifting device for discharging FIBCs for industrial, chemical, and food applications is a holding fixture with chain hoist mounted to a runway girder.



CEILING HEIGHT AS LIMITING FACTOR

Working height + intervention area + FIBC + construction height of lifting device + runway girder ≤ ceiling height



Runway girder (180 mm standard)

Height of liftung device (chain hoist + holding fixture)

→ From lower edge of runway girder to loop holder of holding fixture

FIBC (including loops)

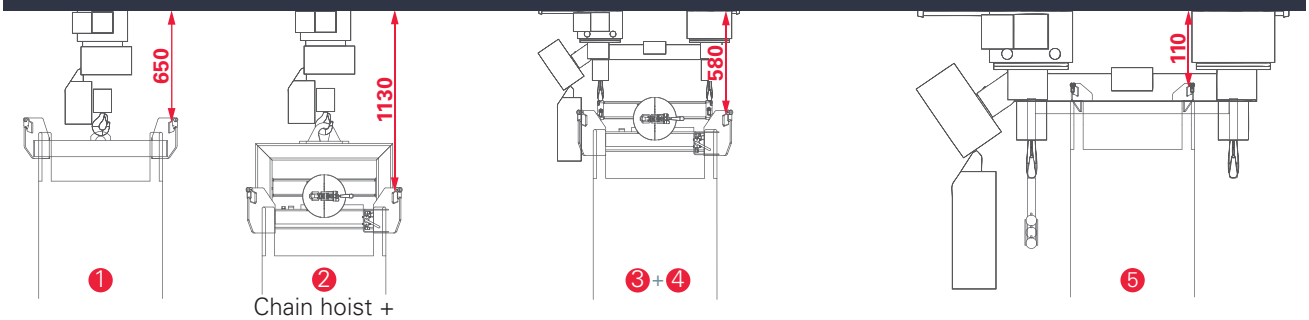
Intervention area (for positioning the FIBC above an outlet connection system)

→ 250-300 mm (standard)

Working height (up to upper edge of SAT, SAT-V or SAT-W)

→ recommended height: 1600 mm (standard)

RUNWAY GIRDER



Chain hoist + holding fixture

Chain hoist + holding fixture with retractor unit

Chain hoist + holding fixture with 4 or without 3 retractor unit

Chain hoist + low-construction holding fixture

1 HOOK | **2 HOOKS**

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

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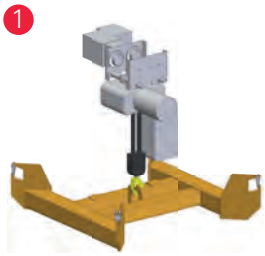
Discharging FIBCs
Lifting devices: Holding fixtures and chain hoists

HAND OUT

1 HOOK

Standard version of holding fixtures and chain hoists **with one hook** for holding FIBCs (loop holders).

1



HOLDING FIXTURE AND CHAIN HOIST

- For small FIBCs
- Construction height*: 650 mm
- Load capacity: 1000 / 2000 kg (weight of holding fixture: 50 kg)
- Ex: no ex-zone, zone 22, or zone 1/21
- Drive: electric or pneumatic

2

HOLDING FIXTURE (WITH RETRACTOR UNIT) AND CHAIN HOIST

- Construction height*: 1130 mm
- Load capacity: 1000 / 2000 kg (weight of holding fixture: 130 kg)
- Ex: no ex-zone, zone 22 or zone 1/21
- Drive: electric or pneumatic
- Cross-section of FIBC: 870 - 1170 mm
- Retractor unit (see I-BE 71 en)

2 HOOKS

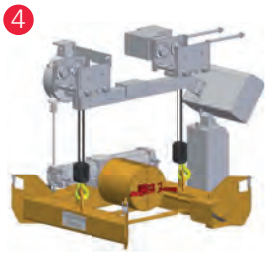
Holding fixtures and chain hoists **with two hooks** for holding (loop holders) and stabilizing the FIBCs during transport (no twisting).

3

HOLDING FIXTURE AND CHAIN HOIST

- For small FIBCs
- Construction height*: 580 mm
- Load capacity: 1000 / 2000 kg (weight of holding fixture: 50 kg)
- Ex: no ex-zone, zone 22 or zone 1/21
- Drive: electric or pneumatic

4



HOLDING FIXTURE (WITH RETRACTOR UNIT) AND CHAIN HOIST

- Construction height*: 580 mm
- Load capacity: 1000 / 2000 kg (weight of holding fixture: 120 kg)
- Ex: no ex-zone, zone 22 or zone 1/21
- Drive: electric or pneumatic
- Cross-section of FIBC: 870 - 1170 mm
- Retractor unit (see I-BE 71 en)

5

LOW-CONSTRUCTION HOLDING FIXTURE AND CHAIN HOIST

- For big FIBCs with a minimum height of: 1200 mm
- Construction height: 110 mm
- Load capacity: 1000 / 2000 kg (weight of holding fixture: 165 kg)
- Ex: no ex-zone, zone 22 or zone 1/21
- Drive: electric or pneumatic
- Cross-section of FIBC: 850 - 1240 mm

* Constrcution height = From lower edge of runway girder to holder for FIBC loops

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

Discharging FIBCs
Lifting devices: lifting column

HAND OUT

DESCRIPTION

USE

Lifting columns are stand-alone lifting devices that are used as an alternative to chain hoists. They are mainly used when cleanability is very important. This is the case in the pharmaceutical industry in particular, but also for high-grade applications in the food and chemical areas.

VERSION

- Material: pharmaceutical design in stainless steel
- Load capacity: up to max. 2,000 kg
- Height: customer-specific
- drive: electro-hydraulic

CAN BE COMBINED WITH

- **all HECHT connection systems**
- **FIBC supports with / without discharge aid**
- **Table frame**

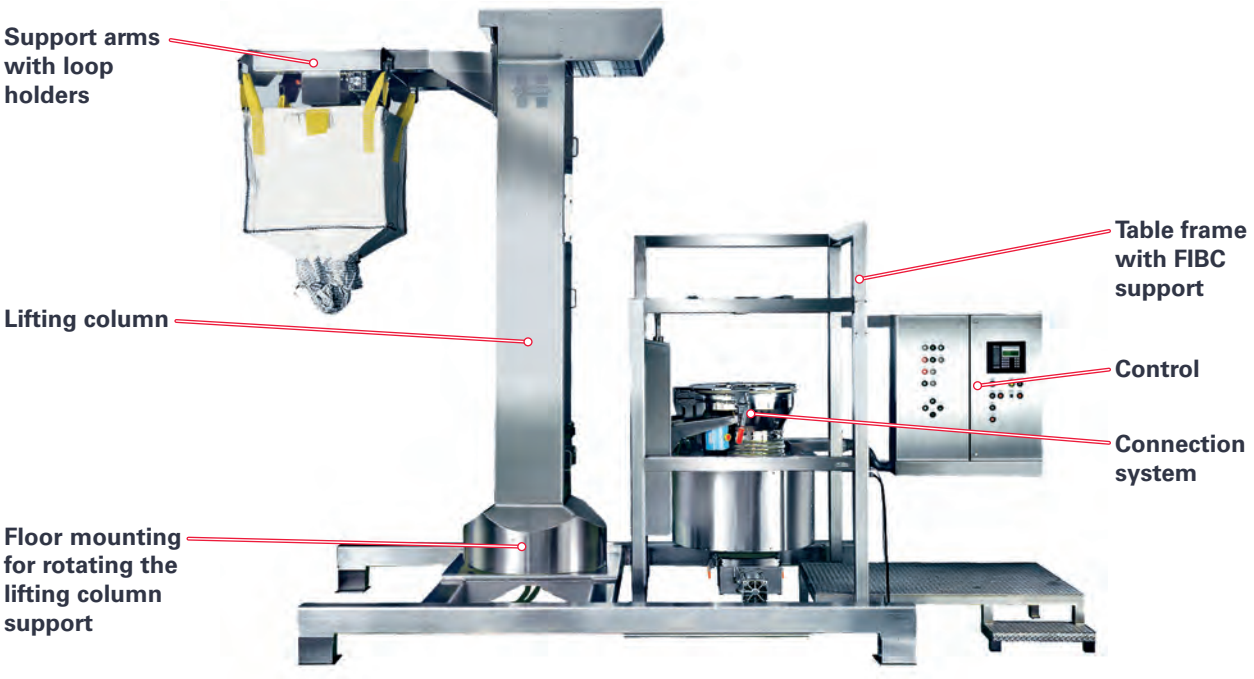


Fig.: Example of an FIBC discharge station with rotary lifting column on a scale and with outlet connection system (AAS)

CLEANABILITY

- Contrary to chain hoists, lifting columns can be easily cleaned.
- The lifting column features stainless steel cladding which is why wet-cleaning is possible.

SCOPE OF DELIVERY

- Lifting column (with static calculation) and floor-mounting
- Control

OPTIONS

- Ex-zone
- Mounting to the ceiling in the case of high loads
- Wet-cleanable

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

I-BE 42 en

Discharging FIBCs
Frames: Tables

HAND OUT

DESCRIPTION

Tables are small and space-saving frames for fastening a connection system and an FIBC support with or without agitation unit.

USE

A runway girder with chain hoist and holding fixture can be mounted or is already available. As an alternative, a lifting column can be used as lifting device.

EQUIPMENT

Depending on the product characteristics or flow behaviour, the table frame is equipped with a support table with or without agitation unit.

VERSION

Galvanized steel, painted or stainless steel

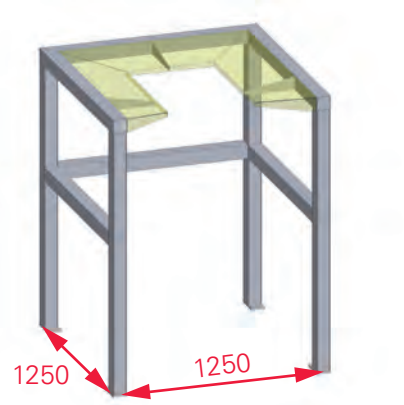
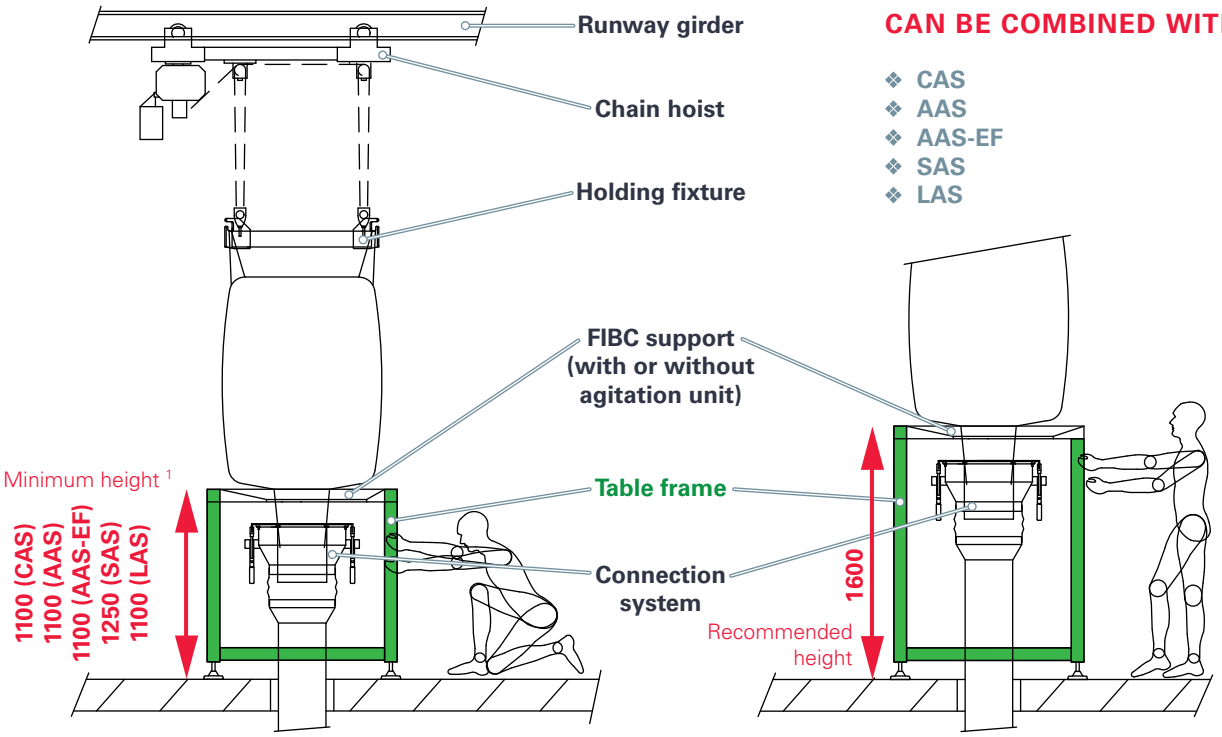


Fig.: Table frame with FIBC support

DIMENSIONS AND SIZES



CAN BE COMBINED WITH:

- CAS
- AAS
- AAS-EF
- SAS
- LAS

CHARACTERISTICS

- varies according to the connection system
- To be recommended only in case of rare FIBC change
- In the case of limited ceiling height, adjustment of the frame height can be considered

CHARACTERISTICS

- User-friendly working
- Optimal height for connecting the FIBC outlet and operating the connection system.

[1] Depending on the version, different dimensions are possible. Different heights on request.

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

I-BE 50 en

Discharging FIBCs
Frames: Gantry frames

HAND OUT

DESCRIPTION

Gantry frames are stand-alone stations for fastening a connection system and an FIBC support with or without agitation unit.

USE

- if the local conditions do not allow mounting of a separate runway girder (very big ceiling height, little load capacity of ceiling), or
- if loss-in-weight discharging is required, or
- if an independent FIBC discharge station is desired.

☝ In addition to the ceiling height, static conditions and the quality or properties of the ground must also be taken into account.

EQUIPMENT

Gantries consist of a frame and an integrated runway girder with chain hoist and holding fixture. Depending on the product characteristics and flow behaviour, the gantry frame is provided with a support table with or without agitation unit.

VERSION

As cantilever or bridge gantry unit, in galvanized steel, painted or in stainless steel.

CANTILEVER GANTRY

CHARACTERISTICS

- Requires only small floorspace, the roadway remains free.
- Due to the tensile forces produced, the gantry unit must be anchored (quality of the ground!)
- Loss-in-weight discharging is possible
- In addition to the connection system, an FIBC support (with or without agitation unit) as well as a chain hoist and a holding fixture are required.

Fig.: Cantilever gantry with runway girder and support table

BRIDGE GANTRY

CHARACTERISTICS

- The bridge gantry consists of an FIBC handling area and a discharging area.
- Even load distribution on the floor
- Loss-in-weight discharging is possible
- In addition to the connection system and the FIBC support (with or without agitation unit; mounted in the discharging area), a chain hoist and a holding fixture are also required.

Fig.: Bridge gantry with runway girder and support table

Construction heights and dimensions result from the local conditions and may vary.

Important: In addition to the ceiling height, FIBC height, runway girder, construction height of the lifting device and the intervention area (see I-BE 40 en), a mounting height of 80 mm between the gantry unit and the ceiling must be taken into account.

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

Discharging FIBCs
Frames: Modules

HAND OUT

DESCRIPTION

Modular frames are stand-alone and flexible stations for sporadic discharge of FIBCs.

USE

- if the local conditions do not allow mounting of a separate runway girder (very big ceiling height, little load capacity of ceiling), or
- if loss-in-weight discharging (option) is required, or
- if an independent FIBC discharge station is desired

EQUIPMENT

Modular frames consist of a frame, a pneumatic height adjustment for FIBCs and the appropriate outlet tensioning device for the connection system.

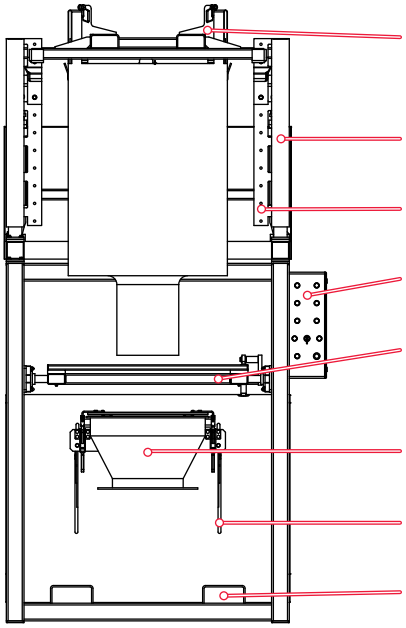
Depending on the product characteristics or flow behaviour, the modular frame is equipped with an FIBC support with or without agitation unit.

Normally, a forklift is used as lifting device, which hangs the FIBC into the modular frame.

VERSION

Mobile or with forklift shoes in galvanized steel, painted, or in stainless steel.

SETUP MODULAR FRAME



Holding fixture with forklift shoes (adjustable)

Frame

Pneumatic height adjustment

Pneumatic control

FIBC support (with or without agitation unit)

Connection system

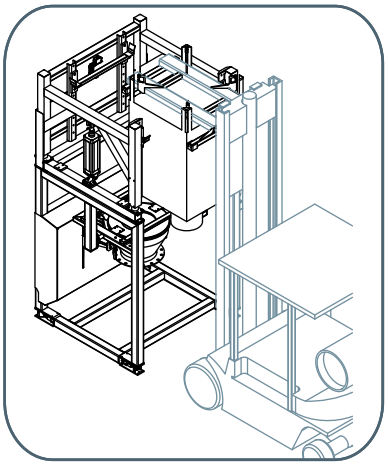
Outlet tensioning device

Forklift shoes

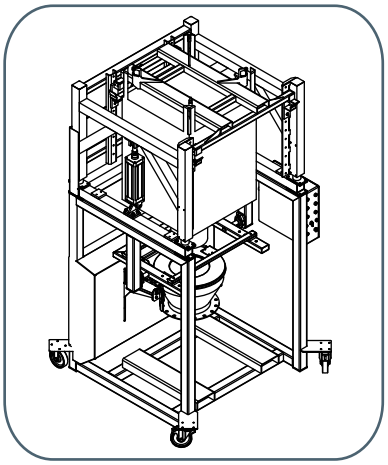
OPTIONS

- Mobile version
- Loss in weight
- Chain hoist instead of forklift as lifting device
- Forklift shoes (bottom)

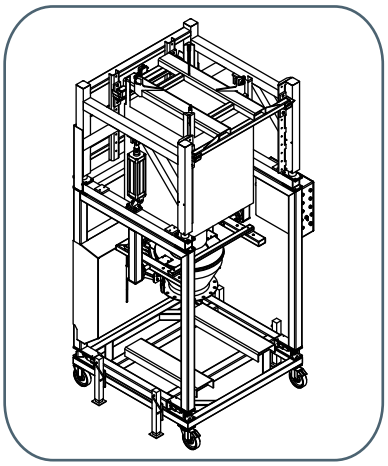
EXAMPLES



Forklift as lifting device hangs the FIBC into the modular frame



Mobile modular frame



Mobile modular frame with loss in weight

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

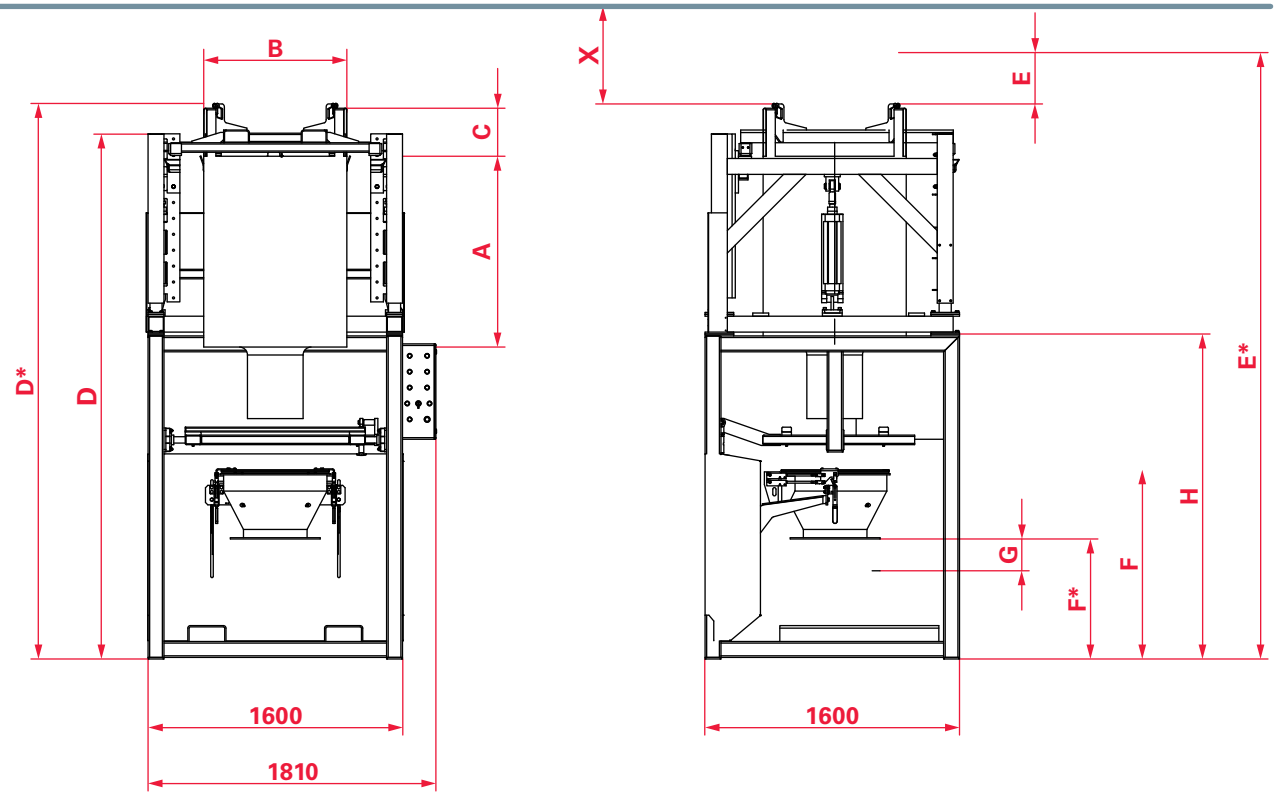
W: www.hecht.eu
E: info@hecht.eu

I-BE 52 en

Discharging FIBCs
Frames: Modules

DIMEN-SION SHEET

DIMENSIONS AND SIZES



FIBC DETAILS

Type		Type 01	Type 02
FIBC height (shoulder height without loops)	A	800 - 1600	1200 - 2000
Base area	B	□ 800 - □ 900	□ 800- □ 900
Loop length	C	200 - 300	200 - 300

TECHNICAL DETAILS

Type		Type 01	Type 02
System height	D	3303	3703
Holding fixture in upper position	D*	3494	3894
Tensioning stroke of FIBC	E	320	320
Max. height requirement	E*	3814	4214
Inlet height	F	1190	1190
Outlet height	F*	755	755
Stroke tensioning device	G	200 / 300	200 / 300
Height of base frame	H	2044	2044
Additional height + 80 mm	X	Corresponding to the industrial truck available.	

Other construction heights on request. Depending on the version, dimensional changes are possible.

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: + 49 8441 - 8956 - 0
F: + 49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

Discharging FIBCs
FIBC supports

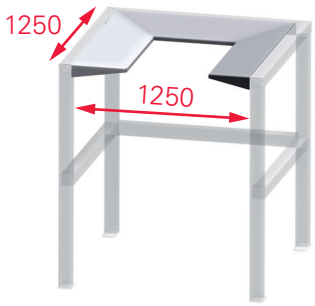
HAND OUT

DESCRIPTION

- FIBC supports are used for **working under suspended loads** and are standard equipment of nearly all FIBC discharge stations. They provide protection for the operator and the connection system.
- Not all products can be discharged from the FIBC without problems, in particular due to compactions in the outlet area of the FIBC. Therefore, FIBC support tables can be supplemented by mechanical **discharge aids** in order to support and optimize discharging.
- All supports can be flexibly used and can be mounted into each frame.

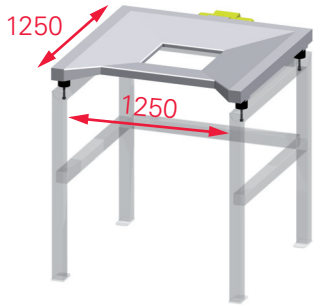
FIBC SUPPORTS WITH AND WITHOUT AGITATION UNIT

SUPPORT TABLE SAT



- **Description:** Basic cost-efficient FIBC support without agitation unit
- **Produkte:** For well-flowing and free-flowing products
- **Funktion:** Permanently mounted into the frame, only serves as FIBC support

SUPPORT TABLE WITH VIBRATION SAT-V



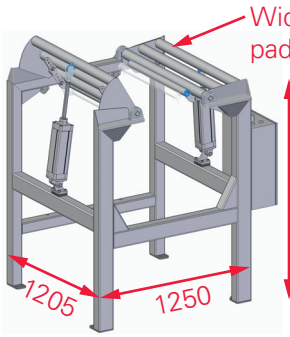
- **Description:** FIBC support with vibration motor as agitation unit
- **Products:** For products that tend to bridging and formation of crystalline compounds or those that require an impulse for discharging
- **Function:** Vibration motor sets the bottom and the outlet of the FIBC into vibration

SUPPORT TABLE WITH VIBRATION SAT-VB

- **Description:** FIBC support with vibration as discharge aid
- **Products:** Dissolves persistent crystalline compounds and product compactions
- **Function:** Mechanical treatment and massaging of the FIBC bottom and outlet (optional)

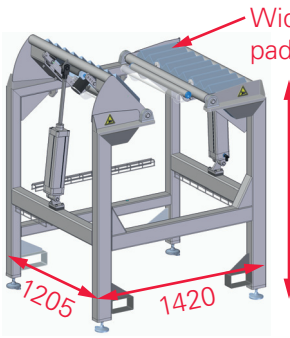
FIBC SUPPORTS WITH AND WITHOUT AGITATION UNIT

SUPPORT TABLE WITH MASSAGING SYSTEM SAT-W



- **Description:** FIBC support with massaging system as agitation unit
- **Products:** For bridging and poor-flowing products
- **Function:** Mechanical treatment and massaging of the bottom and outlet of the FIBC (optional)

SUPPORT TABLE WITH MASSAGING SYSTEM SAT-WV



- **Description:** FIBC support with massaging paddle and vibration motor as agitation unit
- **Products:** For bridging and poor-flowing products
- **Function:** Mechanical treatment and massaging of the bottom and outlet of the FIBC (optional); vibration motor set the bottom and outlet of the FIBC into vibration

Discharging FIBCs
Adjustable agitation units SAT-W and SAT-WV

HAND OUT

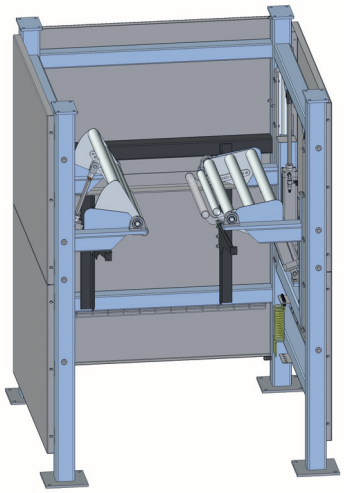
DESCRIPTION

The **support table with massaging system (SAT-W)** and the **support table with massaging system and vibration motor (SAT-WV)** are innovative FIBC supports for optimisation of the discharging process.
These support tables are especially suitable for poor-flowing or bridging products.
They are permanently mounted to the frame or available as stand-alone versions.
As a highlight, the support tables are adjustable in height. Therefore, they can be used in particular with low installation heights, and the FIBC outlet can be retightened by means of the adjustable supports.

DESIGN + ADVANTAGES

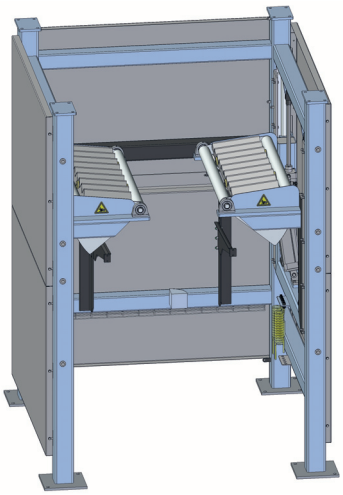
- ATEX version
- Stainless steel or standard steel version
- Piston rods of adjusting unit enclosed by bellows
- Adjusting unit with linear guide and pneumatic cylinders
- Shaft of linear guide available in aluminium or stainless steel
- Use with low installation heights
- Various connecting systems can be integrated
- No bellow required in the product flow, therefore easier to clean.
- FIBC outlet is retightened by means of the height-adjustable agitation unit.

AGITATION UNIT SAT-W



Description:	FIBC support with agitation unit as discharge aid
Products:	for bridging and poor-flowing products
Stroke:	400 mm
Capacity:	1000 kg
Contact pressure:	5000 N total
Function:	mechanical treatment and massaging of the FIBC bottom and outlet (option)

AGITATION UNIT WITH VIBRATION SAT-WV



Description:	FIBC support with vibration unit and vibration motor as discharge aid
Products:	for bridging and poor-flowing products
Stroke:	400 mm
Capacity:	1000 kg
Contact pressure:	5000 N total
Function:	mechanical treatment and massaging of the FIBC bottom and outlet (option); the vibration motor causes vibration of the FIBC bottom and outlet

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

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FIBC Discharging
Height-adjustable agitation unit SAT-W

DIMEN-
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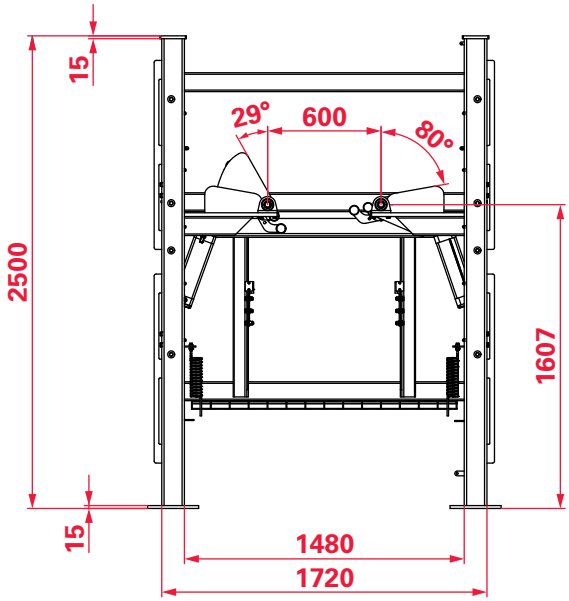
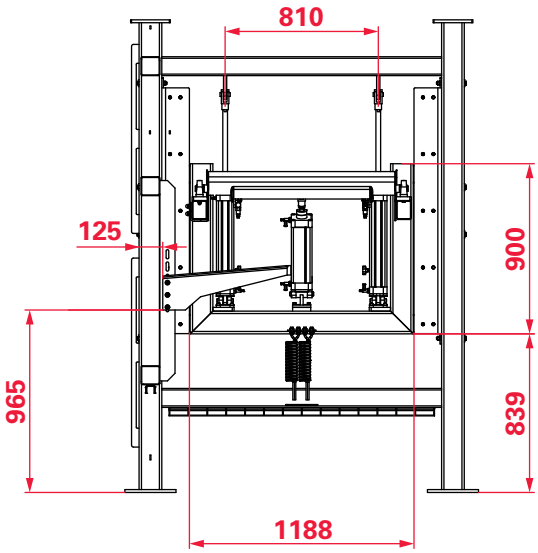
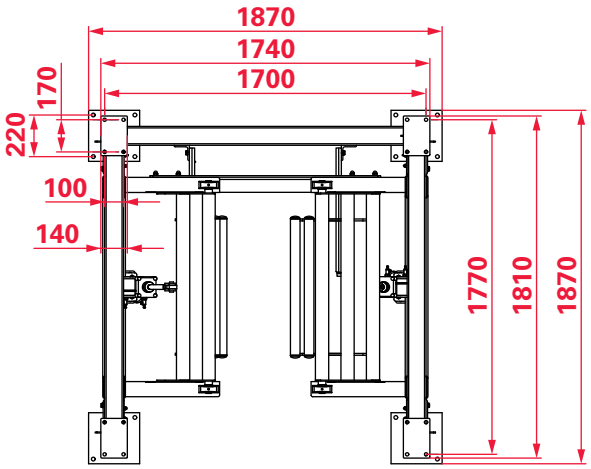
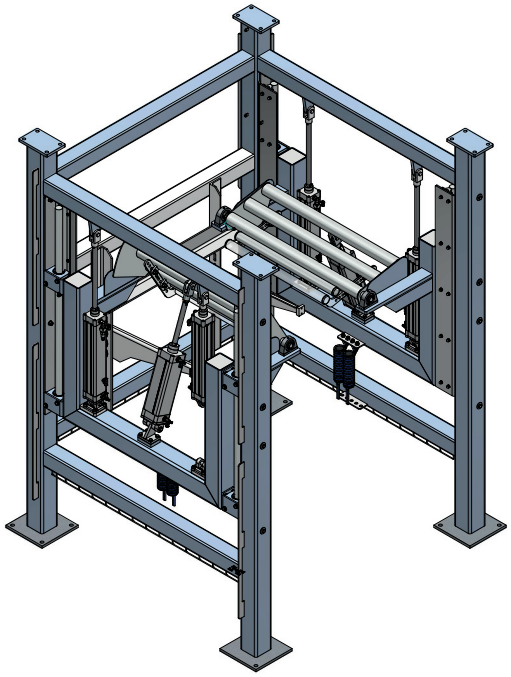
SHEET

DIMENSIONS









HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

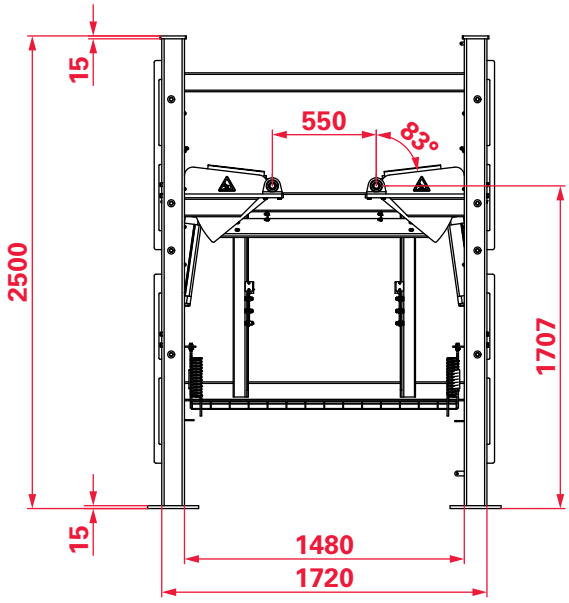
T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

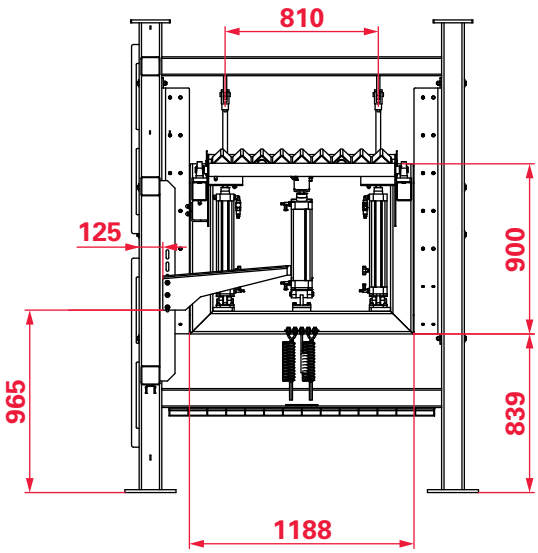
W: www.hecht.eu
E: info@hecht.eu

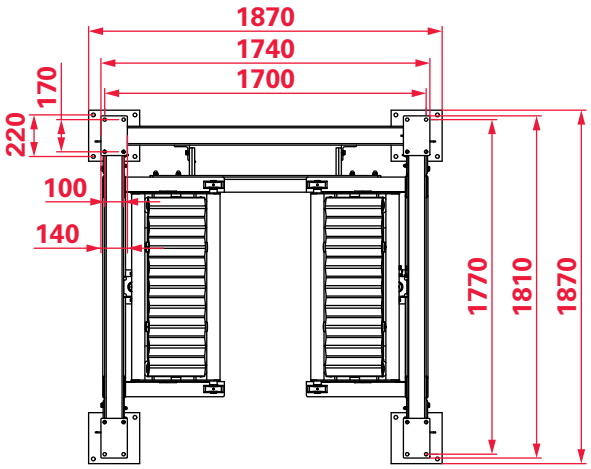
FIBC Discharging
Height-adjustable agitation unit SAT-WV

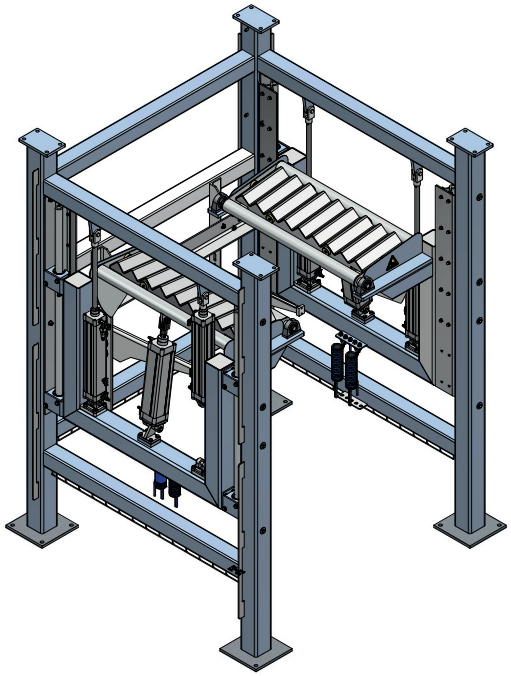
DIMEN-SION SHEET

DIMENSIONS









HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

Discharging FIBCs
Support table SAT-VB

HAND OUT

DESCRIPTION

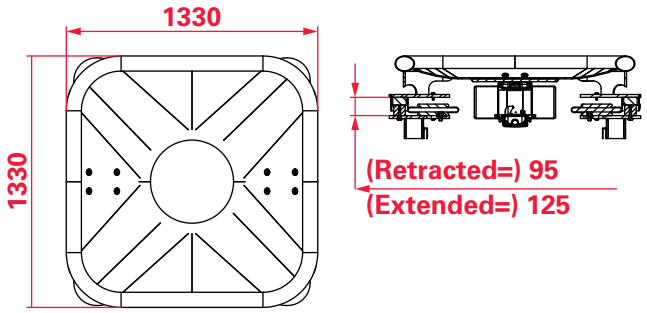
The **support table with vibration crusher SAT-VB** loosens persistent crystalline blocks and product compressions through strong vertical vibration. Two powerful vibration motors provide the necessary vibration. An air suspension system lifts the support table from the base frame and allows for mechanical decoupling. Guides ensure a defined and safe vibration movement.
In order to empty a big bag, the procedure is basically as follows:

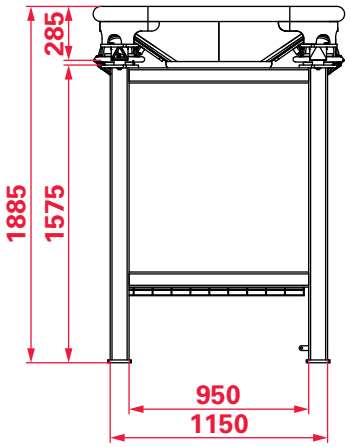
- The big bag is positioned on the support table.
- The vibration unit loosens hard lumps.
- The big bag is connected to the connecting system mounted below the support table and discharged.

The SAT-VB permits to support the discharge process by slight vibration during emptying.

DETAILS

Only one machine is needed for crushing and discharging. Due to the inward inclination of the support surface, the system protects the operator e.g. when a loop tears.
Like all HECHT Technologie products, the entire system can of course be adapted to your wishes.





The combination with an individually selected connecting system and an outlet tensioning device make the SAT-VB a tailor-made big bag discharge station for your process. There are numerous options- ranging from a mechanical tensioning device with outlet connecting system (AAS) to a pneumatic tensioning device with liner connecting system "Easy Connect" (LAS-EC).
The "Easy Connect" system can be designed to meet an OEB level up to OEB 5 and to suit your ATEX requirements. We would be glad to assist you personally with any questions.

AT A GLANCE

- Time-saving
- Extension to our existing support tables
- Robust design

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HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

I-BE 63 en

Discharging FIBCs
Options: Outlet tensioning devices

HAND OUT

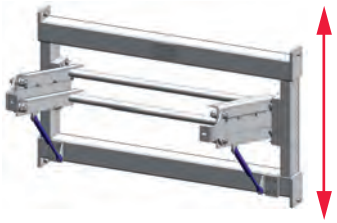
DISCHARGE AID: OUTLET TENSIONING DEVICE

Tightens the FIBC outlet during discharging, thus improving in particular the discharge behaviour of poor-flowing and bridging products.

- The outlet tensioning device is mounted into the frame and holds the connection system.
- When the FIBC is connected, the tensioning device and the connection system are taken to the upper position. The connection system will then be lowered due to its own weight, thus stretching the FIBC outlet.
- The connection system must be connected to a flexible compensator for compensation of the stroke movement.

MECHANICAL TENSIONING DEVICE

- Basic version
- Without extraction protection



Stroke:
200-300 mm

PNEUMATIC TENSIONING DEVICE

- With pneumatic control so as to ensure safe operation of the connection system in each position
- With extraction protection (intervention in chain hoist control required)

CAN BE COMBINED WITH

- CAS
- AAS
- AAS-EF
- LAS

DISCHARGE AID: AUTOMATIC RESTRETCHING UNIT

In addition to the outlet tensioning device for poor-flowing and bridging products.

- During discharging, the FIB becomes narrower and longer.
- Repeated tightening of the FIBC (automatic restretching of the holding fixture by the chain hoist), optimizes the discharge behaviour of the product and avoids bridging.
- This is possible by intervention into the chain hoist control (expensive in the case of an onsite chain hoist).
- An integrated extraction protection prevents the FIBC outlet from being pulled out of the connection system.
- Continuous monitoring of the discharging process by the staff is not necessary.

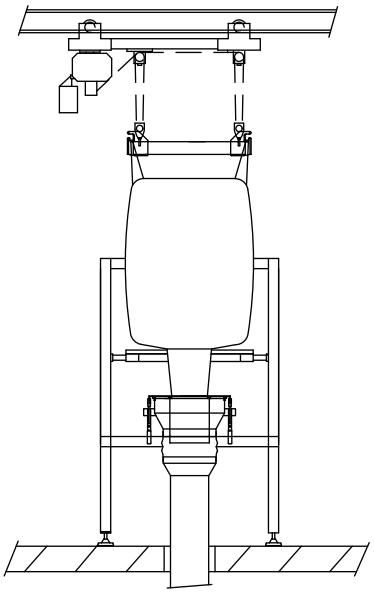


Fig.: FIBC discharge station without automatic restretching unit

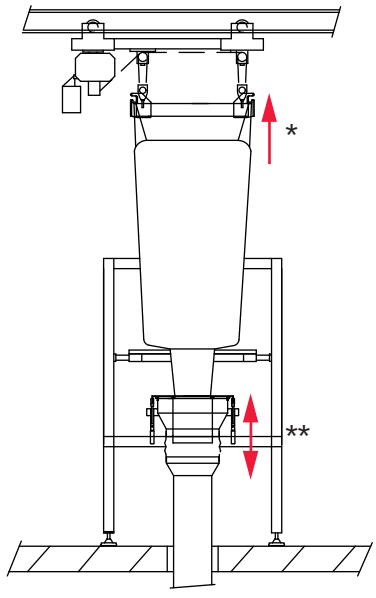


Fig.: FIBC discharge station with automatic restretching unit

CAN BE COMBINED WITH

- CAS
- AAS
- AAS-EF
- LAS
- SAS

* FIBC is tightened (restretching unit)

** Movable connection system due to outlet tensioning device (stroke 200-300 mm)

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

I-BE 70 en

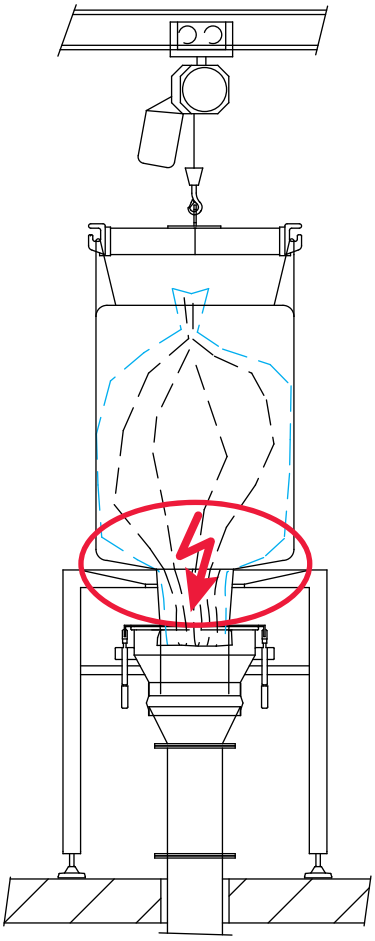
Discharging FIBCs
Options: Fixing of inner liners

HAND OUT

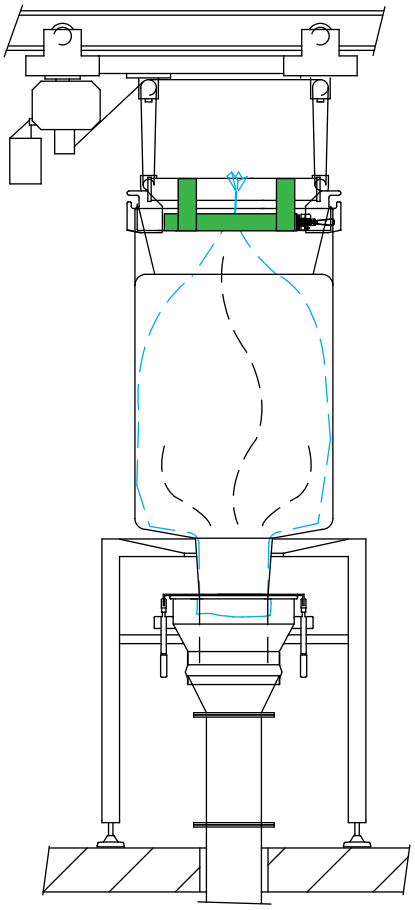
DISCHARGE AID: FIXING OF INNER LINERS

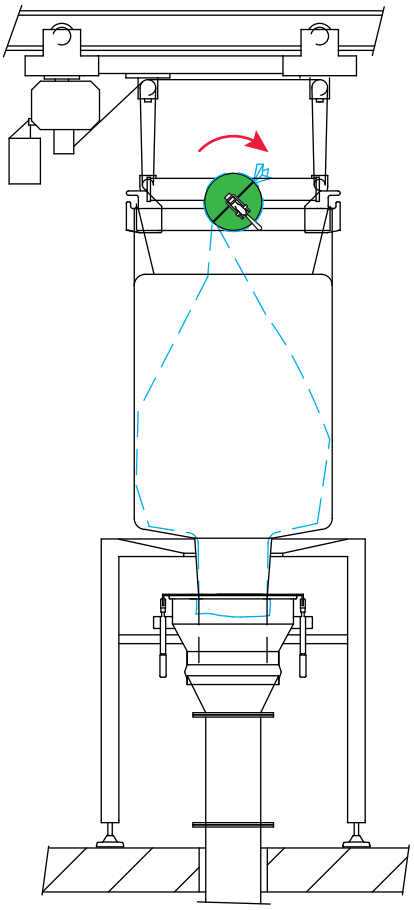
Option for inner liners that are **not** fixed in the FIBC, in particular with poor-flowing and bridging products.

INNER LINER WITHOUT FIXING



INNER LINER WITH FIXING





PROBLEM

- The inner liner is „dragged along“ into the FIBC outlet by the product.
- Due to the **formation of folds** and **restrictions** at the FIBC outlet, build-up of product and bridging may be possible.

CLAMPING DEVICE

- The inner liner is clamped and thus retained.
- Suitable for small FIBCs (800 mm height)
- No effect on the construction height.
- **Better discharge behaviour**, since the inner liner is not pulled into the FIBC outlet, and the formation of folds is reduced.

(see I-BE 41 en)

RETRACTOR UNIT

- The inner liner is wound up and tightened by means of a pneumatic rotary drive.
- Suitable for large FIBCs (up to a height of 2000 mm)
- **Optimized discharge behaviour**, since the inner liner is not pulled into the FIBC outlet, and the FIBC outlet remains unobstructed and tightened.

(see I-BE 41 en)

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

High Containment Components + Equipment
High Containment Closing System

HAND LING

COMPOSITION

With the HECHT **High Containment Closing System**, consisting of liner scissors, closing tool and liner clips, liners can be closed and cut easily and safely.

HANDLING

High containment systems must always be operated in closed mode. The use of containers with liners or the application of expendable liner technology often requires closing and cutting of liners, e.g.:

- for changing containers,
- sampling,
- transferring or
- packing.

By means of the closing tool, two liner clips are positioned close to each other and the liner is tied off. Afterwards, the liner scissors are guided between the two liner clips and the liner is separated with a clean cut.

EASY AND SAFE CLOSING SYSTEM

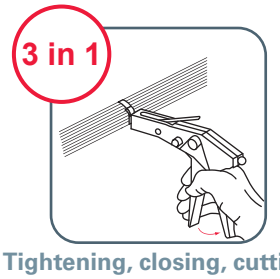
- The liner scissors consist of a steel blade and a counter piece. This allows for a clean and straight cut, even with little effort.
- Furthermore, the liner is protected by the blade guide when positioning the liner scissors, which ensures exact and safe cutting.
- The liner scissors permits to cut liner bundles with a diameter of up to 35 mm.
- The closing tool can tie off the liner tightly as well as close it permanently and vibration-resistantly, while at the same time cutting the liner clip directly besides the head so that no other tool will be necessary.
- The reliable and rugged technology of the liner scissors and the closing tool ensures user-friendly handling.
- The high containment closing system is suited for all common liner types and therefore has a wide range of applications.

AT A GLANCE

In combination with the following HECHT systems:

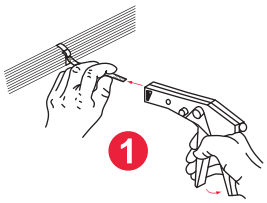
- ProClean Expendable Powder Sampling **EPS**
- ProClean Expendable Weighing Isolator **EWI**
- Liner Connecting System **LAS**
- Protective Liner Connection System **SAS**
- Liner Filling Head **LBK**
- Filling Head Type **SBK**
- Continuous Liner Filling Head

Blade guide protects the liner

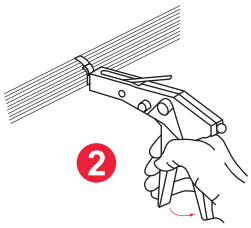


Tightening, closing, cutting

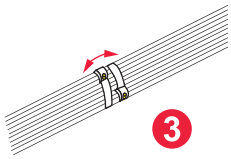
HANDLING



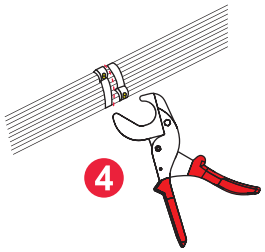
Place a liner clip around the liner bundle, pull it tight by hand and insert its end into the closing tool.



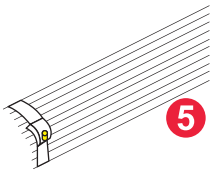
By actuating the closing tool, the liner clip is tightened, the free end cut off and the closure head locked.



A second cable tie is positioned close to the first one, twisted against each other, and fixed in the same way.



Position the liner scissors between the two clips and separate the liner bundle with a single cut.



The short excess end remaining at the two ends of the liner bundles is safely closed by the liner clip.

THE NEW LINER SCISSORS

Advantages of the new liner scissors over the previous model:

BLADE MADE OF TOOL STEEL

- The **sharper edge** means less effort for the operator.

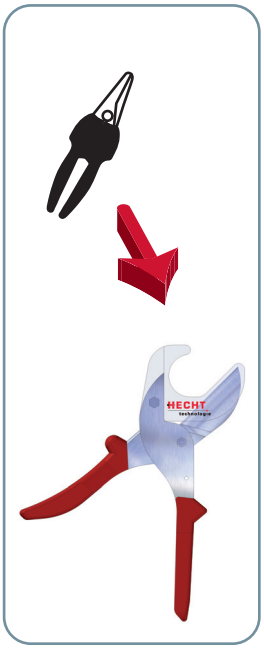
LONGER BLADE

- **With a single cut,** liner bundles up to a diameter of 35 mm can be now be separated.

BLADE GUIDE

- **protects the liner** when positioning the scissors and makes sure that the liner bundle **stays withing the cutting area** when cutting.

AT A GLANCE

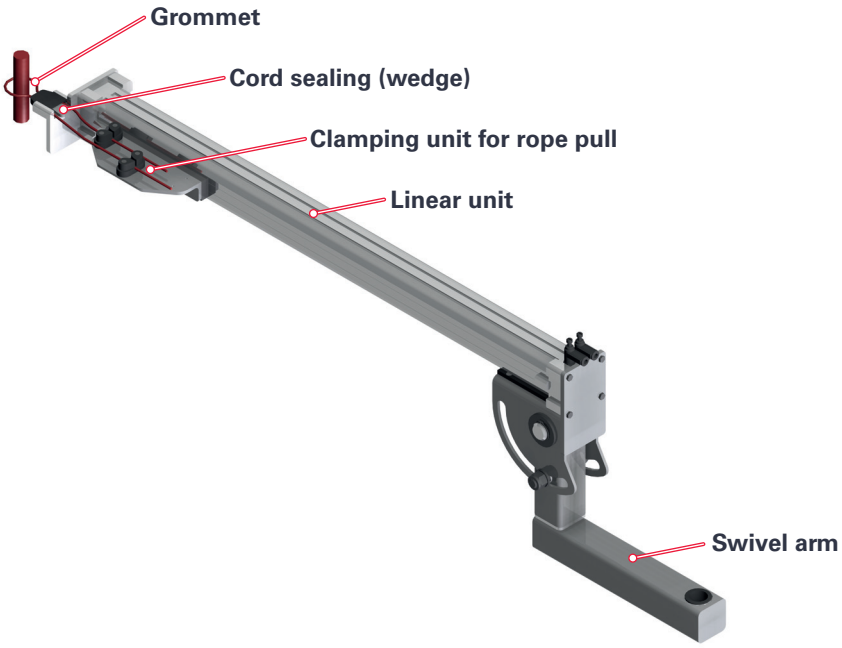


Previous and new version

Discharging FIBCs
Resealing device

HAND OUT

DESCRIPTION



HANDLING

The resealing device can be used for partial discharge of FIBCs with an outlet diameter of up to 600 mm.

By means of a pneumatically actuated sliding carriage performing a linear movement, the rope seal put around the FIBC outlet before is contracted.

When product is concurrently extracted downwards, the outlet can be throttled until the FIBC is completely closed.

The rope seal is fixed in the closed position with a special clamp and remains there. The FIBC can now be undocked and removed from the discharge station.

The partially discharged FIBC can only be sealed off when product is concurrently being extracted, or in combination with an outlet tensioning unit lifting the outlet connection system.

FIBC outlet open

FIBC outlet closed

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

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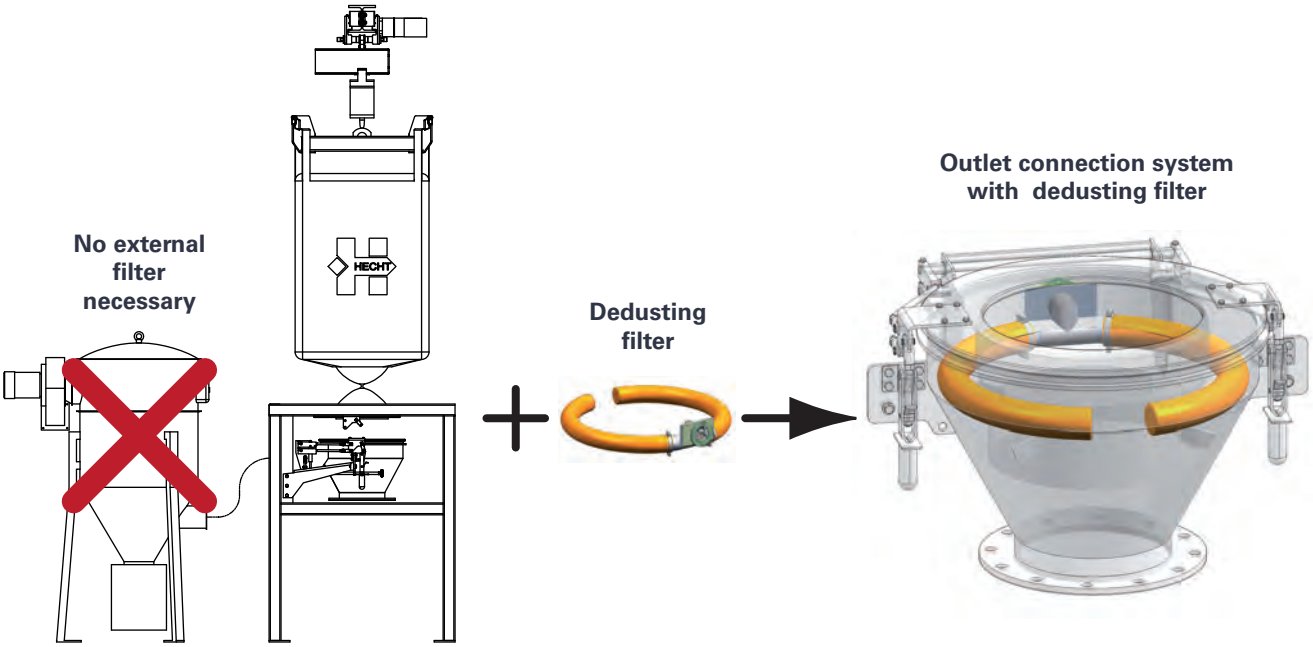
Discharging FIBCs
Accessories: Outlet connection system AAS

HAND OUT

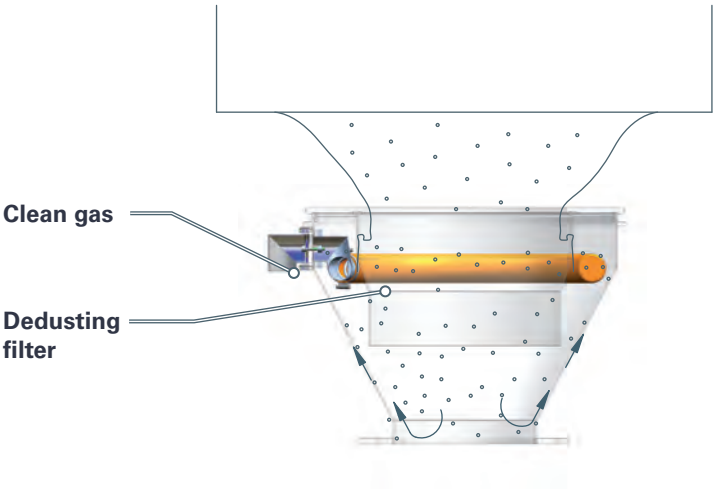
DESCRIPTION

Outlet connection systems AAS for low-dust discharging of FIBCs have been used for 15 years now. For dedusting, external dedusting filters or central filter systems used to be connected until recently.

Now, there is a new patent pending development that reliably prevents product carryover or cross-contamination caused by external filters: **the dedusting filter**.



HANDLING



Dust is deposited in the connection system at a dedusting filter with pneumatic cleaning and thus remains inside the system without loss.

The dedusting filter can be fitted into existing outlet connection systems.

ADVANTAGES

- no product loss
- no carryover of product
- less cleaning effort
- less investment
- better hygiene

OPTIONS

- Exhaustion optional
- Cleaning with compressed air: max. 3-4 bar

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

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Discharging FIBCs
Accessories: Resealing devices

HAND OUT

OVERVIEW

	Resealing device with rope seal	Resealing device Iris Dosing Valve	Slide gate valve for big bags
Use	Partial discharge of big bags	Partial discharge of big bags	Partial discharge of big bags
Advantages	◆ Sealing of big bags during discharge. ◆ Possibility of undocking and and storage of big bags. ◆ Resumption of emptying processes at any time.	◆ Sealing of big bags during discharge. ◆ Possibility of undocking and and storage of big bags. ◆ Resumption of emptying processes at any time.	◆ Sealing of big bags during discharge. ◆ Possibility of undocking and and storage of big bags. ◆ Resumption of emptying processes at any time. ◆ Regulation or throttling of product flow.
Function	A movable pneumatic cylinder mounted on the support table with sliding carriage and inserted rope seal allows the operator to close the outlet of the big bag. The rope seal is fixed in the closed position using a special clamp and remains at the big bag outlet.	The iris wires are inside a tube that is sealed dust-free against the upper housing plate and the lower housing plate by means of a lip seal. By actuating the pneumatic cylinder, the iris valve can be adapted to an outlet diameter of up to 600 mm and completely closed.	The slide gate valve for big bags is fixed in the discharging frame below the support table. By actuating the pneumatic cylinder, the left and the right hand slide plate approach each other on slide rails and close the big bag outlet in the middle. In this way, the product flow from the big bag can be regulated or completely cosed.
Details	◆ Big bag outlet: Ø 400 mm ◆ Closure: rope seals ◆ Assembly: articulated arm ◆ Material: Stainless steel 1.4301 / cylinder aluminium		◆ Big bag outlet: Ø 500 mm ◆ 2 pneumatic cylinders ◆ 2 squeezing bars ◆ Linear guide with slide bearing

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

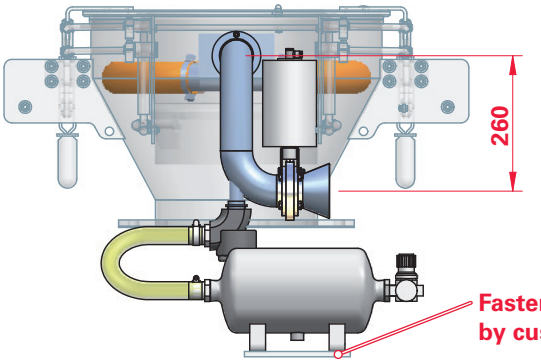
T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

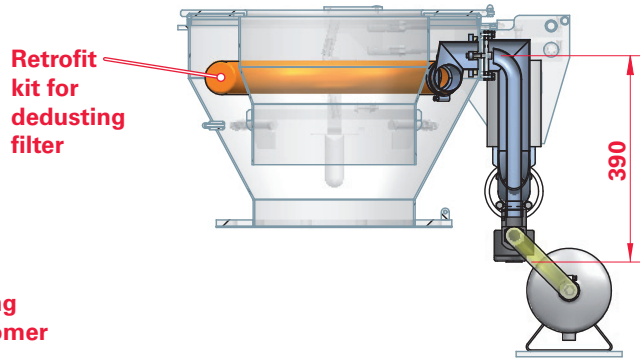
W: www.hecht.eu
E: info@hecht.eu

Discharging FIBCs
Accessories: Outlet connection system

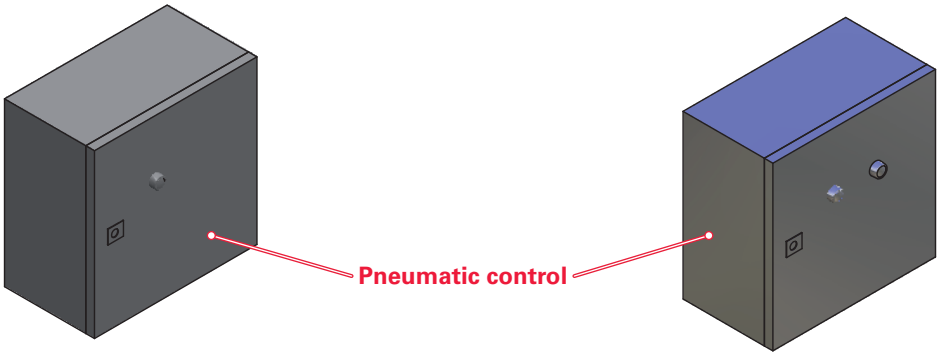
DIMEN-SION SHEET

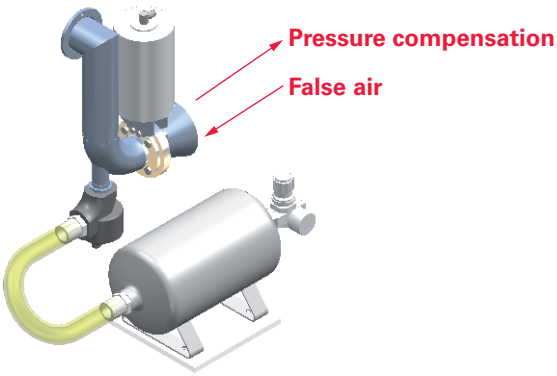
RETROFIT KIT FOR DEDUSTING FILTER



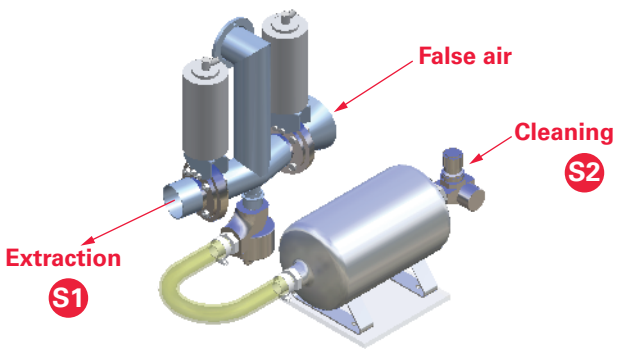


AAS type	FIBC outlet ∅ [mm]	Inner ring ∅ [mm]	Retrofit kit for dedusting filter	S1	S2
550	250 - 300	210	X	Suction pipe DIN EN 10220 ∅ 60,3 x 2 mm	Pressure regulator Internal thread 1/4"
	300 - 350	260	X		
	350 - 400	310	X		
	400 - 450	360	X		
650	400 - 450	360	X		
	450 - 500	410	X		
	500 - 550	460	X		
	550 - 600	510	X		





Filter cleaning



Filter cleaning with extraction

HECHT technologie

HECHT Technologie GmbH
Schirmbeckstr. 17
D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

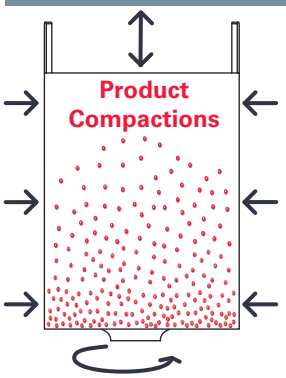
Discharging FIBCs
Big Bag Crusher

HAND OUT

DESCRIPTION

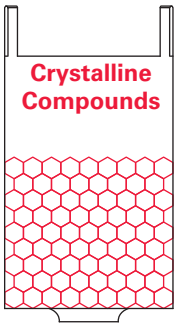
The FIBC Crusher is used to loosen up the contents of FIBC before emptying. This is necessary when the FIBC has a longer standing time and product compaction occurs. It is also necessary if the contents are particularly prone to crystalline compounds and thus to block formation. With the FIBC Crusher, the consolidation is released by mechanical processing along all axes. The crushing is done mechanically with the help of squeeze cylinders. Crystalline connections and bridges are broken up in the big bag and product compaction is loosened again.

PRODUCT COMPACTIONS



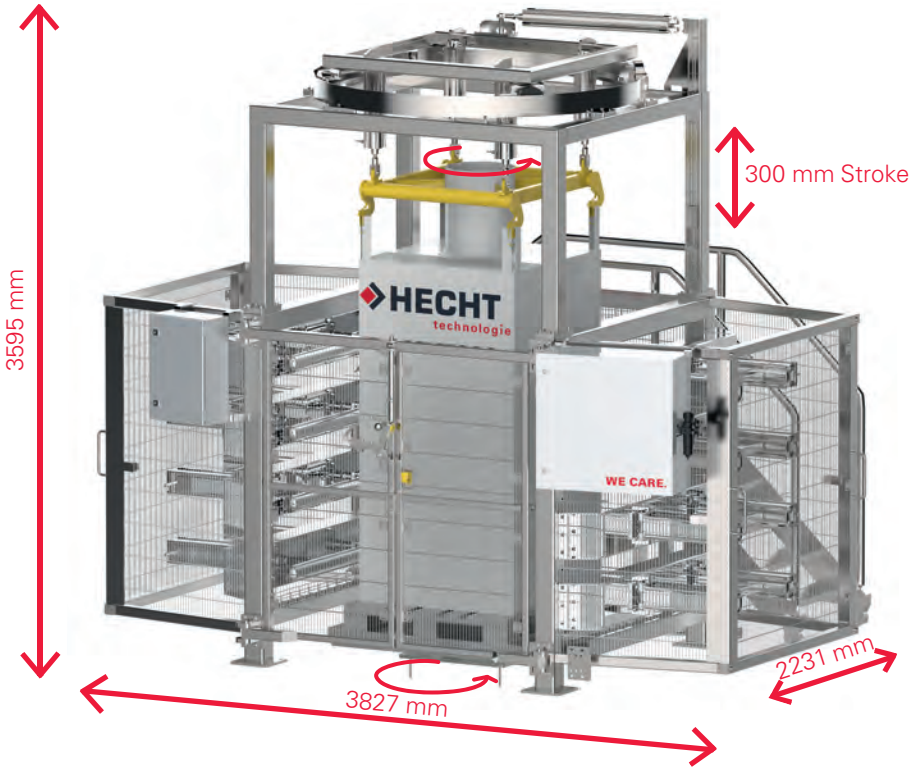
- Product compaction in the lower area of the big bag due to the product's own weight
- Storage and transport encourage compaction

CRYSTALLINE COMPOUNDS



- Product tends to form blocks due to crystalline compounds and cannot be emptied
- Discharge aids with vibration can additionally loosen the connections

DIMENSIONS



AT A GLANCE

Important component for the preparation of FIBCs

Extremely powerful system

FEATURES

With a pressure of up to 6 bar, the 16 pneumatic cylinders are pressed against the big bag simultaneously or sequentially, depending on the hardness of the solidifications.
Employee protection is ensured by an enclosure with a safety switch. The intelligent control system can be adapted to various customer-specific requirements. In combination with the height-adjustable and also rotatable portal, the 90° turning mechanism ensures a tightening and position change of the big bag. This allows a 4-sided loosening of the product, which can be emptied afterwards.

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D-85276 Pfaffenhofen

T: +49 8441 - 8956 - 0
F: +49 8441 - 8956 - 56

W: www.hecht.eu
E: info@hecht.eu

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