

# Storage, Transport and Process Containers out of Stainless Steel.

Drums, hoppers, silos.  
Stainless steel bottles and hopper cans.  
Butterfly valves.  
Low-dust powder handling.  
Drum emptying systems.  
Small handling devices.

# Your Solution-Oriented Partner for Gripping Ideas out of Stainless Steel

Müller DrumTec in Rheinfelden (Germany) is a leading manufacturer of storage, transport and process containers out of stainless steel. The Company manufactures all its containers in-house, in a combination of automated series production and traditional craftsmanship – and is committed to the very highest quality standards.

Its globally recognized expertise encompasses a wide portfolio of lidded and tight head drums, as well as single- and double-walled drums, which can be used for heating or cooling according to specific applications. This portfolio is complemented with butterfly valves and process components for filling powders and viscous media.

Standardized units ensure highest combinability of the modules. Yet individuality is decisive for success. The designs are created with a focus on the solution, in close cooperation with the customer. Continuous further development of its portfolio makes Müller DrumTec the sought-after expert for container customer solutions in a wide range of industries.

## Müller DrumTec is a member of the Müller Group.

The four companies in the Group develop, manufacture and sell

- industrial packaging made of mild steel, fibre, plastics and stainless steel,
- storage, transport and process containers out of stainless steel as well as
- handling, dispensing and GMP washer systems.

The Müller Group offers its customers individual solutions for a wide range of applications in the pharmaceutical, chemical, hygiene, cosmetics, flavors and fragrances, food, mineral oil, paints and coatings, semiconductor, storage and distribution industries.

The internationally oriented family enterprise with over 120 years of experience has 400 employees at production sites in Switzerland and Germany. The Group's worldwide presence is underpinned by a network of more than 50 representatives.

Precision and focus for constant quality



Containers and process components

# The Suitable Container in the Right Quality

The pharmaceutical, chemical, cosmetics and food industries process high-grade liquid, pasty or powdery substances, often in batches and in different process steps. Stainless steel containers play a central role for product quality and plant availability in all process phases. They ensure durable corrosion resistance, outside and inside and, thanks to their non-porous surfaces, their thermal resistance and their cleanability, they meet all hygiene requirements. Any soiling is easily removed. Germs and bacteria cannot adhere.

Müller DrumTec has been offering a proven system for the processing industry – for more than 55 years. So, a stainless steel drum for storage or transport becomes in no time a process container that meets all requirements of a modern production flow. The Müller system can be extended individually with hoppers, butterfly valves, drying inserts, discharge aids, mixing hoods or sieves. All system components are

matched to one another within a modular system and are thus interchangeable. The flexibility of the Müller system allows adapting the filling or the storage volume individually to the production.

## Many application areas. Unlimited possibilities

Branches	Processes	Products/Materials
<ul style="list-style-type: none"> <li>• pharmaceuticals</li> <li>• chemistry</li> <li>• food</li> <li>• cosmetics</li> <li>• additive production</li> </ul>	<ul style="list-style-type: none"> <li>• storage</li> <li>• transport</li> <li>• decanting</li> <li>• blending</li> <li>• emptying</li> <li>• tempering</li> <li>• drying</li> <li>• processing</li> <li>• loading</li> </ul>	<ul style="list-style-type: none"> <li>• powder</li> <li>• granulates</li> <li>• tablets/capsules</li> <li>• intermediate products</li> <li>• reagents</li> <li>• auxiliary materials</li> <li>• pellets</li> <li>• pastes</li> <li>• liquids</li> </ul>

## YOUR CUSTOMER BENEFITS AT A GLANCE

- stable, light and durable
- modular structure
- from 0.1 to 2000 litres
- from Ø 76 mm to Ø1200 mm
- out of stainless steel, AISI 304, AISI 316L up to Hastelloy
- polished surface for optimal product discharge, Ra < 0.6 µm
- electropolishing, HALAR or PTFE coating possible
- GMP pharmaceutical standard
- UN approval for solid and liquid substances



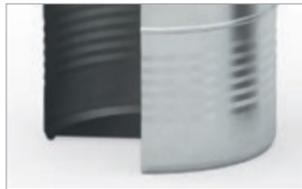
# The Müller Drum – the Basis of an Intelligent System

Cylindrical lidded drums in GMP compliant pharmaceutical quality are butt-welded and without gaps. They are easy to clean residue-free. Despite their low tare weight, they are very stable even under maximum load.

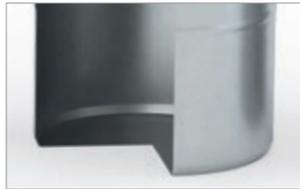
The Müller lidded drums are designed for various environmental conditions – and they adapt in the same time to changing process conditions.

## Various bottom shapes for a wide range of applications

**Stackable bottom**  
stackable, high standing stability



**Stackable flat bottom**  
very easy to clean



**Flat bottom**  
optimal internal and external cleaning, not stackable



**Flat bottom with base ring**  
bottom protected by a welded base ring, not stackable



**Torospherical bottom**  
for higher weights and pressures, not stackable



**Lateral bottom outlet**  
for residue-free emptying of liquids

### Sheet metal quality

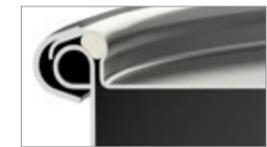
- inside and outside Ra < 0.6 µm
- on request electrochemically polished or mirror-polished
- optional HALAR or PTFE coating

**Clamping ring**  
for the easy and tight fastening of the lid or hopper

**Edge**  
• GMP compliant  
• welded without gaps

**Lid for clamping ring**  
for tight and safe closing of the drum

**Lid edge**  
suitable for every Müller edge



**Seal**  
• O-Ring, placed in the drum lid or in the hopper

	Silicone	Viton	EPDM	FEP coated
<b>FDA</b>	X	X	X	X
<b>USP VI</b>	X	-	-	X
<b>Others</b>	BFR XV	-	-	-
<b>Colour</b>	transparent	gray	creme	transparent

**Clamping beads**

- prevent the drum from slipping while lifting it
- suitable for Müller clamping straps
- optimal geometry for residue-free emptying
- particularly easy-to-clean beads

### YOUR CUSTOMER BENEFITS AT A GLANCE

- 0.1 to 1000 litres in 16 different standard diameters
- for powders, liquids and viscous media
- butt-welded, without gaps
- low tare weight and maximum stability
- clamping ring for easy and tight closing
- GMP-compliant edge welding
- optimal beads geometry for residue-free emptying

# Müller Containers Offer More

## Conical drums

Conical drums save space. Stacked into each other, the storage base is reduced after the second drum. They are preferred in all situations where they are to be used in larger numbers and transported empty, e.g. in the case of long transport routes between the emptying and the filling of the drums. They are stackable also when they are filled.



## Tight-head drums

The processing industry uses hazardous liquids and substances such as acids, alkalis, ultra pure or toxic media daily. They often must be stored or transported under extreme conditions such as high pressure or high temperatures. Suitably designed and safe tight-head drums are the ideal solution for such environmental conditions. The decisive factors here are the proper material and a smooth and gap-free inside processing of the drums. Also the different closures and seals play a decisive role for safety.



### YOUR CUSTOMER BENEFITS AT A GLANCE

- stackable into each other when empty, and thus space-saving
- stackable on each other when filled
- butt or roll seam welded
- volume from 30 to 200 litres

### YOUR CUSTOMER BENEFITS AT A GLANCE

- UN approval for the transport of dangerous goods
- safe handling of liquids
- geometry for residue-free emptying
- various closures and seals available
- volumes from 30 to 220 litres in D 375 and D 560

# Unbreakable Stainless Steel Bottles

Glass combines a range of features that predestine this material for laboratory use. Nevertheless this material always bears the risk of breaking. The unbreakable stainless steel bottle is a safe, GMP compliant alternative to glass for pharmaceutical use. It can be used for storage, as a reusable container or as storage tank.

No special protection is required for the transport. This saves time and costs. Also versions with UN approval for the transport of dangerous goods are possible. If the process requires larger volumes, there is a seamless transition from the stainless steel bottle to the hopper can.



### STANDARD SIZES

- Ø 120 mm, 1.5 litre
- Ø 170 mm, 3 litres
- Ø 170 mm, 5 litres
- Ø 300 mm, 25 litres
- Special versions on request



### YOUR CUSTOMER BENEFITS AT A GLANCE

- handles for ergonomic handling
- stainless steel bottles from 1.5 to 25 litres
- hopper cans from 25 to 100 litres
- outlet according to customer specification

### ACCESSORIES

- handles
- closures and markings

Optional with UN approval with GL screw lid (stainless steel/plastic) or closure according to customer specification.



# Hoppers for Low-Dust Emptying

Filling and decanting of drums are special situations, as the content of the drum gets in contact with its environment. Symmetrical and asymmetrical hoppers with butterfly valves up to nominal diameter 300 make this operation easy. There are suitable

hoppers for every Müller stainless steel drum, to allow safe and low dust emptying of contents. Different cones and discharge aids ranging from the hook up to the pneumatic vibrator ensure trouble-free emptying.

## YOUR CUSTOMER BENEFITS AT A GLANCE

- for emptying in various nominal sizes
- suitable for all Müller lidded drums
- can also be adapted for third party drums
- cone 60°, 90° or asymmetrical
- with accessories such as discharge aids, vibrators, sight glasses, etc.



**60°**  
standard hopper for normal bulk goods



**90°**  
particularly space-saving, for easily flowing bulk goods



**Asymmetrical**  
• for sluggishly flowing bulk goods  
• for tight space conditions

**Inlet nozzle**  
penetrates in the silicone cover

**Shut-off valve**  
• starts and ends the filling process  
• butterfly valve, e.g. MC, MRF or rotary valve

**Lid edge**  
• suitable for every Müller edge



**Marking**

**Thorn pick up**



**Mechanical hook/agitator**

**Sight glass**

**Pneumatic vibrator**

**Carrying handle**



**Hoppers for third-party drums adapted to your container**  
The proven Müller hopper range with hopper edge adapted to your container. To transfer the product from the supply container into your process container.

# Multipurpose Silos

Müller silos can be used as well for storage and transport well as for blending, filling, decanting and emptying. They mainly stand out by their volumes, which range from 5 up to 1200 litres. They are a versatile system component used from laboratory purposes up to large batch preparation for liquids, powders or viscous media. Their large opening allows for easy and problem-free cleaning, ensuring quick readiness for a new filling operation.

The silos can be combined with all other modules in the Müller system, e.g. with suitable frames and additional accessories. Silos can be integrated intelligently and economically in the process at all locations where inverting is not required. Various outlet cones are available, depending on the flowing properties of the media: symmetrical 60° and 90° or asymmetrical

### YOUR CUSTOMER BENEFITS AT A GLANCE

- volume up to 1200 litres
- optional with separate or fixed frame
- UN approval for solid and liquid substances
- large top opening
- emptying without turning the container
- outlet symmetrical 60°, 90° or asymmetrical

### ACCESSORIES

- sight glass
- vibrator
- hook/agitator
- push handles
- electrically conductive castors
- positioning pins
- filling nozzle

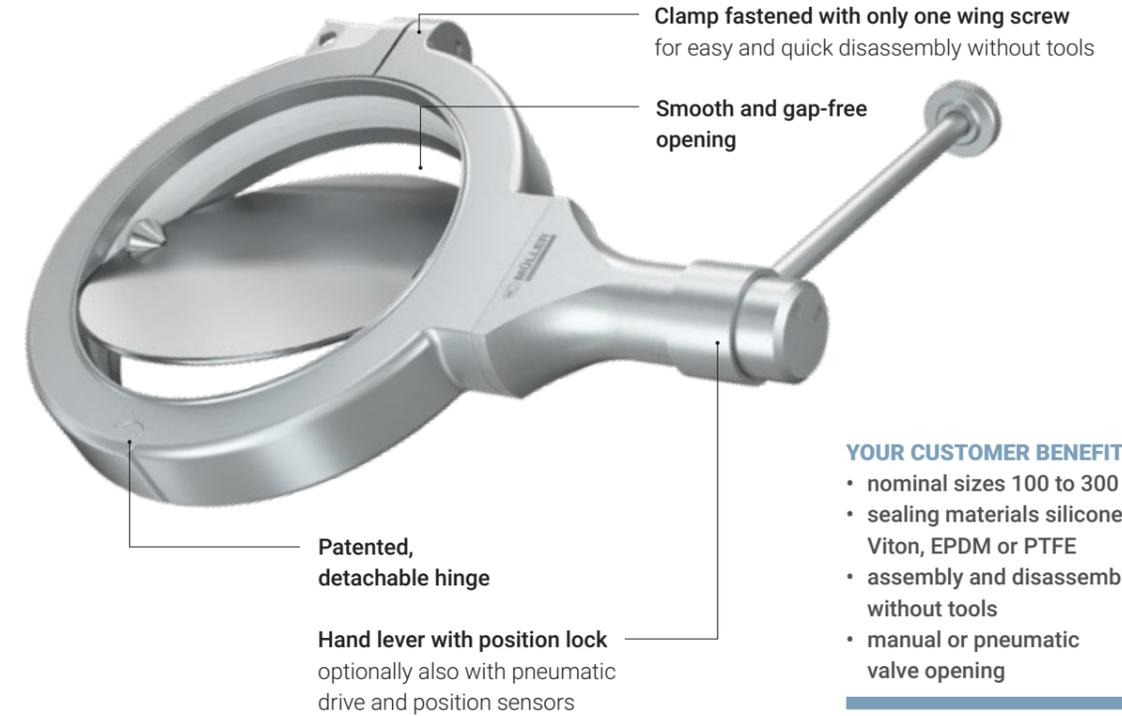


# Perfect Flow Control

### MC valve

Butterfly valves allow control and monitoring of the flow of various media in pharmaceutical processes. Müller's patented MC valve is used wherever frequent product changes are required.

The valve can be disassembled without tools in just a few steps, it is extremely easy to clean and requires low maintenance. Variants with hand lever or pneumatic actuator allow all interfaces to be mastered.



### YOUR CUSTOMER BENEFITS AT A GLANCE

- nominal sizes 100 to 300
- sealing materials silicone, Viton, EPDM or PTFE
- assembly and disassembly without tools
- manual or pneumatic valve opening



### Rotary valve

Rotary valve version for simple dosing tasks. The rotation of the valve disk leads to a continuous product flow. Suitable for the even feeding of machines that require continuous material flow.

### Dragee disk

A dragee disk simply integrated in the existing MC valve prevents tablets or capsules from being crushed when closing thanks to soft lips mounted on the valve disc.

### MRF valve

If short cleaning and maintenance cycles are not decisive factors, the particularly cost-optimised design of the MRF valve is an inexpensive alternative – whilst maintaining the same technical performance.

# Small-Scale Handling

A container can only be economically integrated into the process chain if also the interfaces and the transport of this container match the specific situation.

### Yoke

A yoke carries standing drums safely. It connects the crane hook and the drum clamping strap. It can be adapted for special drum-hopper combinations. The drum-hopper combination can easily be inverted – manually or by a geared handwheel.

- safe lifting and transport with a ceiling crane
- designed for high safety and weights up to 500 kg



### Drum rollers

Drum rollers allow safe and easy drum transport by hand. The stable construction and the ergonomic push handles support an effortless transport. The drum rollers are designed for different drum diameters.

- transport drums safely and without effort by hand
- rectangular trolley, with ergonomic push handle or round version compatible with drum diameter



### Hopper frame

A hopper frame carries the drum-hopper combination, e.g. for direct mounting on the machine.

### Inlet nozzle and valve



### YOUR CUSTOMER BENEFITS AT A GLANCE

- safe transport with the ceiling crane
- for lifting and inverting drums
- for gripping and exact positioning of drum-hopper combinations on the process machine or at the wall

# Agile Gripping and Safe Transport

Large volumes of goods are handled in the processing industry, in production halls & between floors. But also in small production units, with tight spaces. This requires devices that must be both light and maneuverable, but also user-friendly and stable.

Müller AGILO allows for simple and flexible gripping and transporting of a wide range of different containers. Their optimal ergonomics and flexible functionality guarantee safe transport whatever the room situation. These small mobile handling devices are available in various sizes, manufactured according to the GMP and comply with the pharmaceutical standards.

### Drum gripper with clamping jaws



### Platform



### Drum gripper with gripper jaws

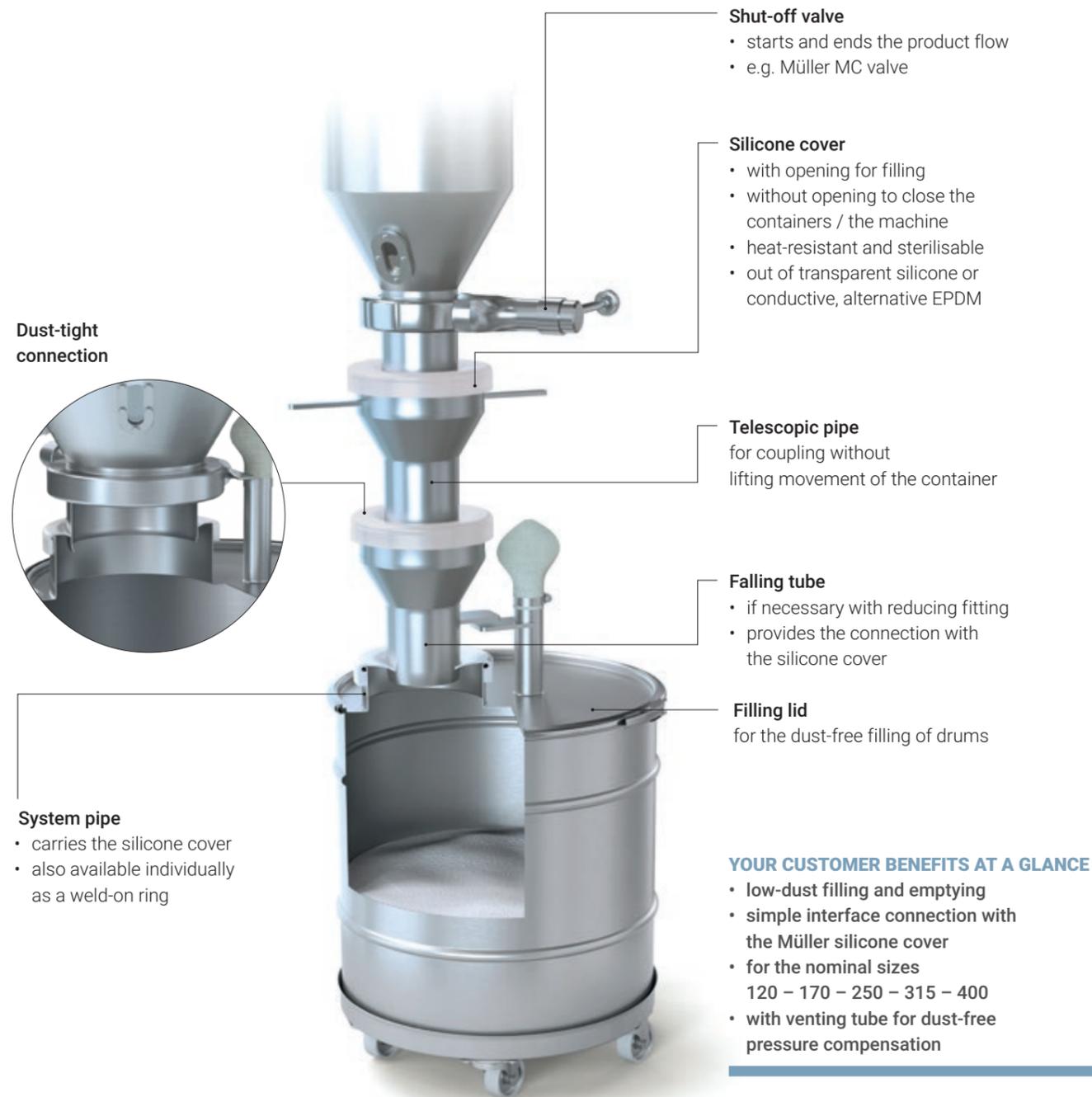
### YOUR CUSTOMER BENEFITS AT A GLANCE

- defined variant diversity thanks to standard modules
- for loads up to 250 kg
- electric drives – lift/lower, invert, grip
- standardised grippers for the handling of different containers
- high ergonomics and agility
- safe and flexible working
- optimal and suitable addition to the drum handling

# No More Loss of Powder

The challenge, when filling powders, is to prevent the formation of dust. In Müller's low-dust powder handling system, this task is achieved by use of their flexible silicone cover. This cover ensures the accurate fitting of the telescopic pipe and the subsequent low-dust connection. The silicone cover fits every Müller system

pipe and every edge, so that all openings can be safely closed after the filling operation. This way, from a problematic process, low-dust filling and emptying of tablet presses, reactors, blenders, mills, sieves and containers becomes an ordinary standard process.



# Dust Removed without Residue

Not all powder filling or emptying operations can be performed in a closed system, which leads to the release of dust. Müller extraction systems offer targeted help to decant or fill open drums: The suction ring is connected to the existing extraction system or to an industrial vacuum cleaner and then pushed on the drum to be filled.

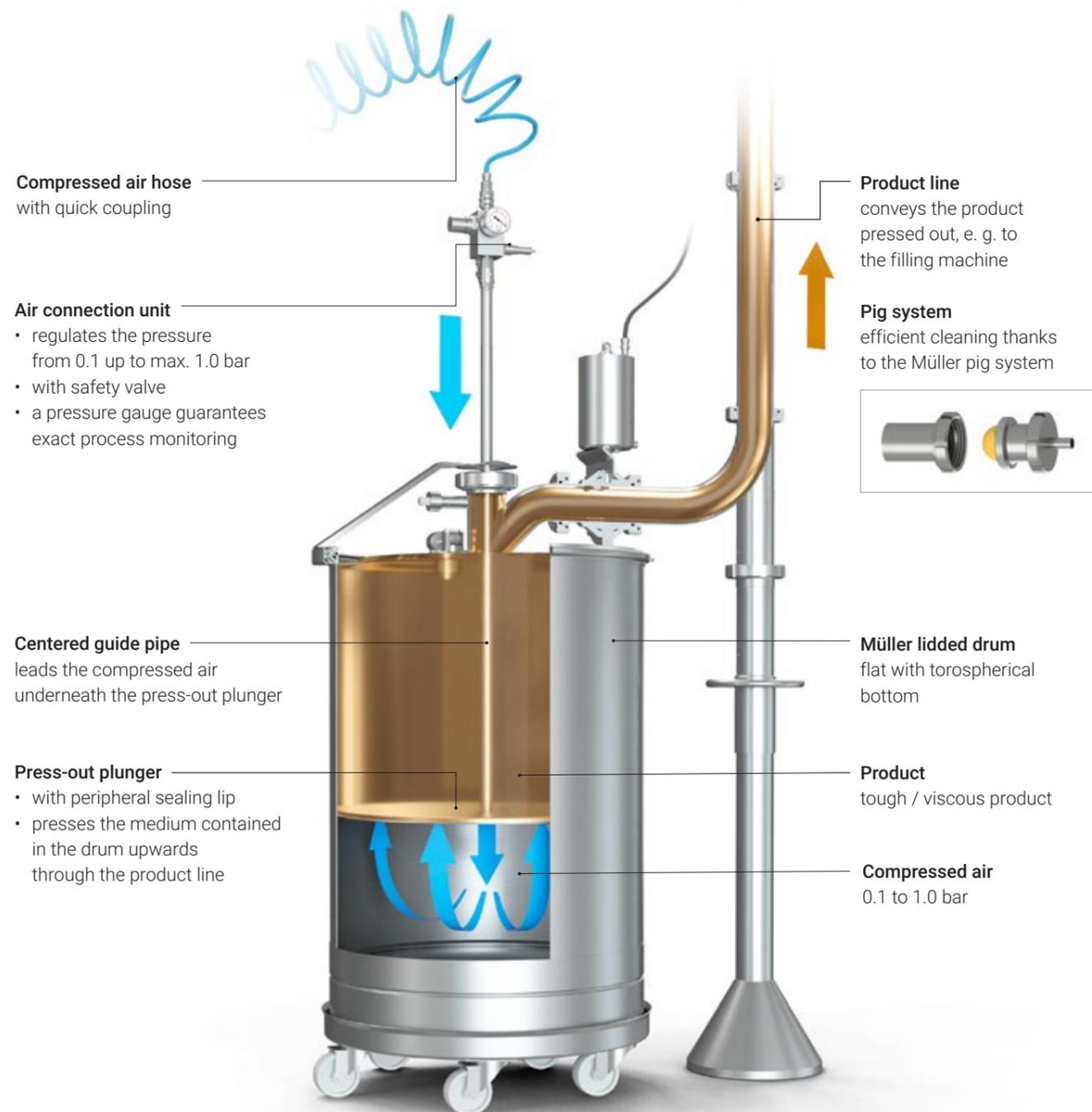
The suction ring allows adaption to suit the height of the drum exactly. A slot in the suction ring then sucks the dust away efficiently and without residue. Müller's extraction systems can achieve containment values up to OEB level 2. This assists factories in keeping the production premises clean and meeting the work place limit values.



# Gentle Product Emptying

The Müller drum emptying system FD allows filling, storing and gentle conveying of pastes, ointments or gels, or other viscous or liquid products, on the shortest route from the drum to the filling machine under exclusion of air. The principle: a stainless steel press-out plunger is placed on the torospherical bottom of the smooth Müller lidded drum, the viscous media is filled in

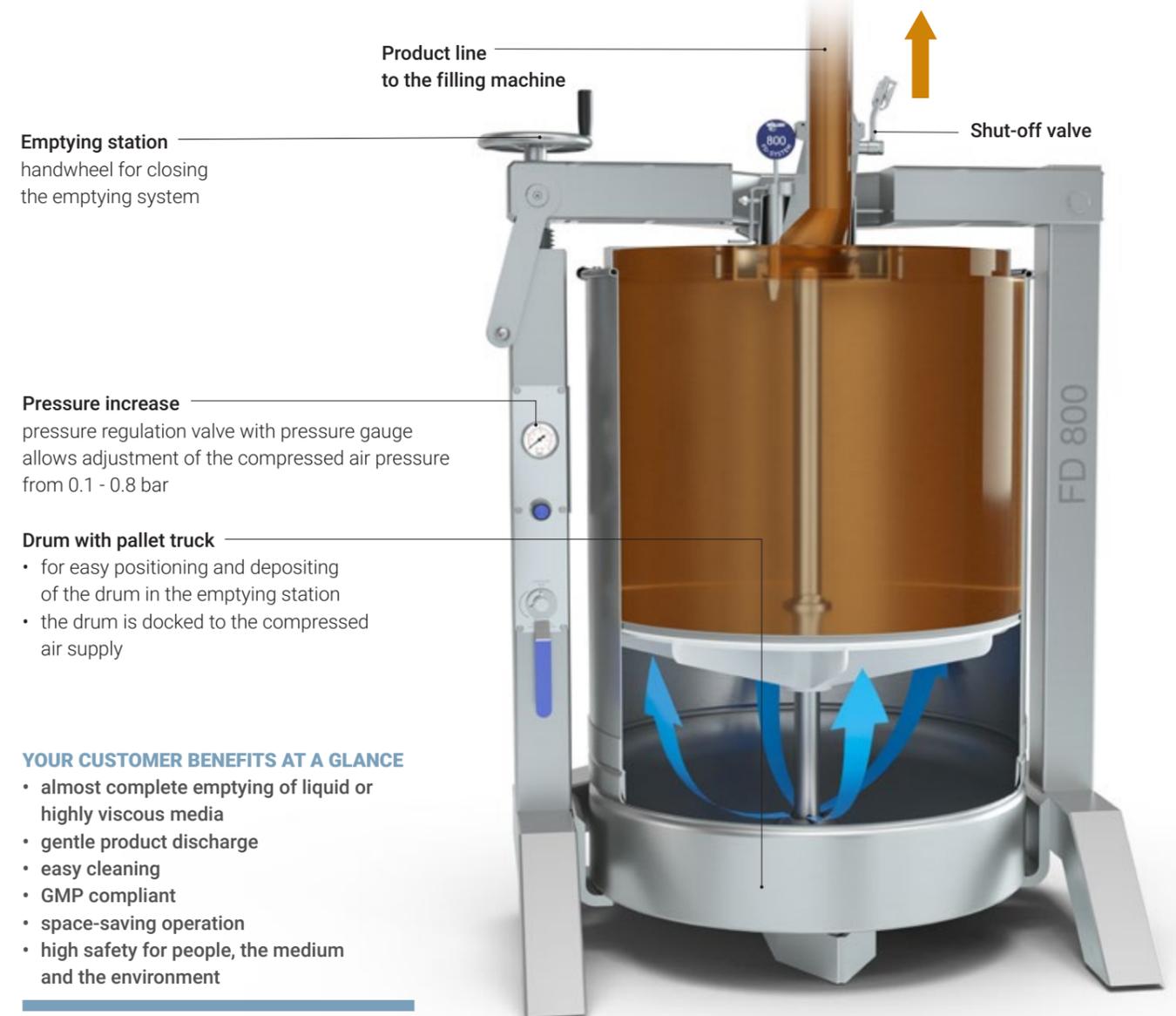
the drum, which is then closed with the standard lid. Before emptying, the normal lid is replaced with the system lid and the guide pipe is coupled to the compressed air line. A low air pressure pushes the press-out plunger upwards and thus conveys the medium through the connection line to the filling machine.



# Large Volumes – no Problem

Viscous and pasty products in large batches require particular handling work. The larger the batch, the larger the remaining residual volume after emptying the drum. Therefore, a valuable residual volume of the product remains in the drum, which increases both the costs and the required cleaning work in the event of an operation compliant with GMP or FDA specifications.

The Müller drum emptying system FD XXL operates the same way as the smaller FD system, in a closed system loop. The core of the system are smooth-walled stainless steel drums with a usable volume of 400 to 1000 litres. It allows conveying of large batches of highly viscous products directly from the storage container to the filling machine without any problem.



### YOUR CUSTOMER BENEFITS AT A GLANCE

- almost complete emptying of liquid or highly viscous media
- gentle product discharge
- easy cleaning
- GMP compliant
- space-saving operation
- high safety for people, the medium and the environment

# A Special Unit for Specific Cases

## Special containers

The modular construction of the Müller containers allows both cost-effective customised individual products and series production. Müller DrumTec manufactures special containers out of stainless steel with diameters ranging from Ø 76 mm up to Ø 1200 mm with various bottom and lid shapes.

## Pressure containers

Since 2002, pressure containers exceeding 0.5 bar are subjected to the Pressure Equipment Directive. Müller DrumTec manufactures in compliance with this EU Directive. Being a manufacturer approved in compliance with the HP0 / TRD 201 leaflet in connection with DIN EN ISO 3834-2, we guarantee the corresponding quality in writing.

## YOUR CUSTOMER BENEFITS AT A GLANCE

- pressure and vacuum containers
- modularly assembled system containers
- individual advice already in the planning phase
- specialist knowledge and solution expertise for a wide range of customer requirements

Pressure vessels up to Category II, Module A2 can be approved in-house, as from Category III an approval by a certified body is required.

## Modular system components

Müller DrumTec also designed a flexible, modular housing system for the requirements of industries other than the pharmaceutical sector which meets individual sector demands. The system is suitable for combinations across sizes & all applications. Individual solutions can be developed with various diameters, according to the respective customer requirements. Müller system components allow assemblies for housings for filters, vacuum conveyors, dryers, separators and absorbers with a comprehensive range of accessories.



# Responsible Management for the Benefit of the Customers

## CUSTOMER FOCUS

- reliable solutions provider in terms of quality and reliable delivery
- high flexibility, to meet promptly the requirements of our customers
- safety for people, the environment and the product
- The maintenance of long-term customer relationships is at the core of all our customer solutions

## QUALITY CERTIFICATES

- quality management in compliance with ISO 9001
- occupational safety in compliance with ISO 45001
- environmental management in compliance with ISO 14001
- quality assurance program in compliance with BAM-GGR 001 for the manufacture of UN hazardous goods packaging
- AD 2000-HP0 certification for the manufacture of pressure equipment according to the Pressure Equipment Directive 2014/68/EU
- manufacture and quality management of ATEX products in compliance with DIN EN ISO 80079-34

## QUALITY MANAGEMENT

- non-destructive material testing in compliance with DIN EN ISO 9712 (VT and PT)
- issuance of inspection certificates
- material testing by X-ray fluorescence analysis
- helium tightness test and leakage tests
- delta ferrite determination

## ENVIRONMENTAL MANAGEMENT

- modern extraction systems for grinding dust and high efficiency filters for clean air and work places
- green roofs on the new extensions serving as natural water reservoirs and dust filters, and as a substitute habitat for insects and plants
- durable energy supply thanks to an own cogeneration plant
- 100% of the power supply comes from hydroelectric power

Müller DrumTec - expertise all round



# Müller Group.

## From Packaging to Processing.



3 Mars Ct  
Unit 4  
Boonton, NJ 07005  
973.917.3331  
info@aicontainer.com



**MVM Pack-Holding AG**  
Tramstrasse 20  
4142 Münchenstein  
Switzerland  
T +41 61 416 12 00  
F +41 61 416 12 22  
group@mueller-group.com



UN-approved packaging made of  
mild steel, stainless steel and fibre.

**Müller AG Verpackungen**  
Tramstrasse 20  
4142 Münchenstein  
Switzerland  
T +41 61 416 12 00  
F +41 61 416 12 22  
packaging@mueller-group.com



Plastic packaging and  
technical moldings.

**Müller AG Plastics**  
Falkensteinerstrasse 4  
4132 MuttENZ  
Switzerland  
T +41 61 467 93 93  
F +41 61 467 93 99  
plastics@mueller-group.com



Storage, transport and process  
containers out of stainless steel.

**Müller DrumTec GmbH**  
Industrieweg 5  
79618 Rheinfelden  
Germany  
T +49 7623 969 0  
F +49 7623 969 69  
drumtec@mueller-group.com



Integrated handling, dispensing  
and GMP washer systems.

**Müller AG Processing**  
Tramstrasse 20  
4142 Münchenstein  
Switzerland  
T +41 61 416 12 12  
F +41 61 416 12 13  
processing@mueller-group.com