

POWDER HANDLING SYSTEMS



STREAMLINE YOUR PLANT PROCESSES WITH CUSTOMIZED THIELMANN SOLUTIONS



From transport, filling and storage to mixing, dosing, discharging and packaging, THIELMANN powder handling systems can be designed, customized and integrated to streamline and simplify operations at your plant.

Whatever your requirements, whatever your industry, THIELMANN IBC containers and systems can be fully integrated into solutions that optimize operations.

All THIELMANN powder handling systems are engineered with precision to exceed quality standards to preserve your bulk materials and ensure the safety of personnel.

THIELMANN solutions can be:

- **UN** approved
- **ATEX** certified
- **GMP** appropriate



TAILORED SOLUTIONS

YOU START WITH AN IDEA.
WE MAKE IT HAPPEN

Here at THIELMANN we don't believe in 'one size fits all'. Your operations are unique, your production line should be also.

Whether you operate in the food, chemical or pharmaceutical industry, we have the expertise to fully customise, equip and integrate a production line for your plant. Starting with evaluation of the product blend formulation and flow characteristics of your materials, our engineers will configure a system that provides:

- A smooth work flow
- Safe transport and storage of all materials, both hazardous and non-hazardous
- Dosing system automation for precise, repeatable results at scale
- Safety interlocks to confirm exact docking of containers at each stage
- The correct interfaces for an integrated solution
- The right mixing solution for your materials, whether a tumble mixer or stirring unit
- The optimal cone valve for your materials for zero segregation and rat-holing
- Dispensing and discharging equipment and processes that eliminate cross-contamination
- Precision engineered container systems that deliver the highest standard of quality and safety
- Validatable precision
- Hygienic, cleanable and durable containers made from Type 304 or Type 316, Type 316L stainless steel or Hastelloy and 6-moly alloy

HOW DOES IT WORK?

UNDERSTAND HOW THIELMANN CAN MEET YOUR IBC-BASED POWDER HANDLING REQUIREMENTS



Filling

IBC filled with raw materials via either manual process or automated process managed by the control panel



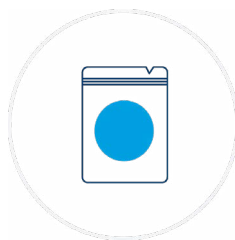
Dosing

Accurate dosing of materials according to recipe using the correct valve to ensure precise measurements



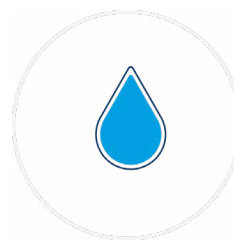
Blending

Materials blended together using the correct agitator to suit the materials in use and ensure an evenly blended product



Packing

End product dispensed into packaging container using the correct valve to eliminate bridging, rat-holing and segregation



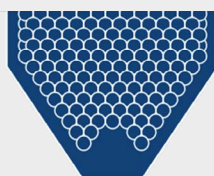
Cleaning

Easy cleaning processes for all IBCs, valves and interface systems to ensure hygiene and eliminate cross-contamination



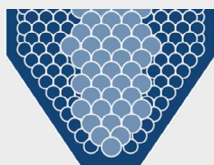
SOLUTIONS FOR COMMON PROBLEMS

THIELMANN engineers carefully select the valve design that matches the type of materials being used in order to eliminate:



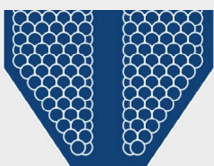
BRIDGING

Bridging occurs when large particles interlock above the outlet resulting in no flow



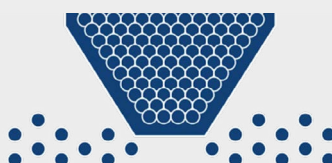
SEGREGATION

Segregation occurs when particles of different sizes or weight move through the discharge valve at an uneven rate



RAT-HOLING

Rat holing occurs when material against the sides of the IBC remains stagnant and a channel of quickly moving materials flows from the centre



CONTAINMENT

Dosing systems designed with valves and fittings that comply with Operator Exposure Limits (OELs) to protect personnel from dangerous chemicals, compounds and fumes

INDUSTRY APPLICATIONS

WHATEVER TYPE OF BULK MATERIAL YOU DEAL WITH, OUR TECHNICAL TEAM WILL MATCH YOU WITH THE RIGHT CONE VALVE SOLUTION



CHEMICAL

Corrosion-resistant, safety regulation-compliant solutions for the handling of dangerous chemicals



COATINGS

Solutions designed to meet the requirements of paints and varnishes needing careful handling



BEVERAGES

Hygienic, safe and robust solutions to meet the demanding requirements of the beverage industry



INFANT NUTRITION

Hygiene, quality and food safety requirement-certified cone valve solutions for the infant food industry



ANIMAL NUTRITION

Solutions for the safe and hygienic handling of nutrition substances for man's best friend



FLAVORINGS

Valves for food production industries, built to meet hygiene, quality and safety requirements



PHARMA

Solutions that comply with the highest quality and safety certifications to maintain pharma product integrity



BEAUTY

Valve systems engineered to meet the stringent requirements of the cosmetics and beauty industries

COMPARISON MATRIX	CHEMICAL CONE VALVE	ADVANCED CONE VALVE	PHARMA CONE VALVE	STANDARD BUTTERFLY VALVE	SPLIT BUTTERFLY VALVE
Rigidity / Rough operation	***	**	****	****	****
Cleanliness	*	**	****	***	****
Employee health protection	*	**	****	****	****
Un approval possible	Yes	Yes	Yes	Yes	Yes
ATEX certification available	Yes	Yes	Yes	Yes	Yes
Foodgrade materials	Yes	Yes	Yes	Yes	Yes
Cleanability	***	***	**	***	**
Dosing accuracy	**	**	**	***	**

INDUSTRY FIT

Preferred	Chemical	Coatings Metal Powder Food Stuff	Pharma	Metal Powder Foodstuff	Pharma
Useful		Pharma	Chemical Coatings	Pharma	Chemical Coatings
Also used for	Metal Powder Foodstuff	Chemical	Metal Powder Foodstuff	Chemical Coatings	Metal Powder Foodstuff

CONE VALVE TECHNOLOGY

THE CONE VALVE GOOD FLOWABILITY ADVANTAGE



Easy flow cone valve technology for bad flowability bulk materials to meet cleanliness and hazardous handling requirements.

THIELMANN cone valve systems are designed to overcome many of the common challenges associated with bulk material handling, including poor flowing and sticky materials.

The THIELMANN advantage:

- Eliminate bridging, rat-holing and segregation
- Our experts match the right cone valve with the material in use
- Customized to fit your specific bulk material requirements
- Safe, hygienic, easy to use
- Modular solutions for integration into wider handling systems

CONE VALVE CONTAINER SYSTEMS

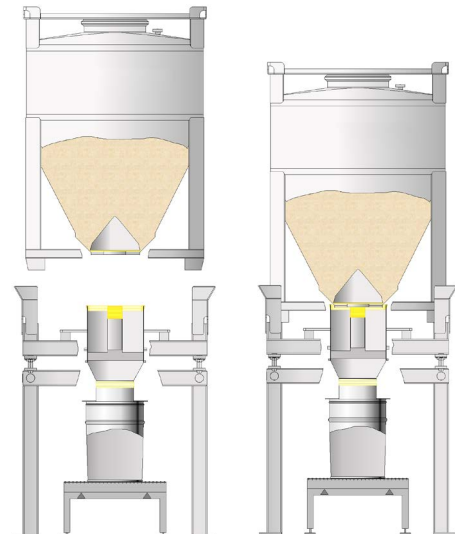
Discharging and dosing via cone valve, best solution for poor flowing and sticky bulk material.

Our cone valve systems can be customized to fit your specific bulk material requirements, in order to avoid bridging, rat-holing, segregation or degradation.

We design our systems to be complete safe, hygienic, modular and easy to use. They guarantee complete emptying while controlling the flow with a fully automated process.

Our Chemical, Pharma and Advanced Cone Valve Systems represent different solutions which will adapt to your bulk material in the way you need, whether you have a free-flowing, bridging or fragile product, or you need to keep dust emissions controlled at any time.

Our technical sales team will help you choose the solution that best fits your requirements.



ADVANCED CONE VALVE SYSTEM



CHEMICAL CONE VALVE SYSTEM



PHARMA CONE VALVE SYSTEM



ADVANCED CONE VALVE SYSTEM

ADVANCED CONE VALVE SOLUTIONS FOR DIFFICULT TO FLOW BULK MATERIALS WITH ADVANCED CLEANLINESS REQUIREMENTS



The THIELMANN advanced cone valves offer an operational advantage when working with poor flowing and sticky bulk materials that have high cleanliness requirements.

Our technical experts will match your bulk material with the right advanced cone valve solution to eliminate bridging, rat-holing and segregation during operations.

Ensure precise dosing and discharge every time with zero cross-contamination.

THIELMANN advanced cone valves are designed to be safe, hygienic and easy to use. They can be controlled manually or via fully automated process to ensure precise dosing every time.

Speak to a THIELMANN expert today to find the advanced cone valve solution to meet your unique requirements.



Materials

	BASIC	PLUS	TOP
Product wetted: Stainless Steel AISI 304 / 316L	● / ○ / ○ (1)	● / ○ / ○ (1)	● / ○ / ○ (1)
Frame: Stainless Steel AISI 304 / 316Ti	● (1)	● (1)	● (1)
Seals: Silicon / PTFE / EPDMv	● / ● / ○	● / ● / ○	● / ● / ○
Cabinet: Steel painted (RAL 7035) / Stainless Steel	● / ^	● / ^	● / ^
Discharge cylinder lifting capacity by 6 bar / 10 bar [kN]	13 / 21	13 / 21	13 / 21
Discharge cylinder air amplifier (10 bar)	○	○	○
Discharge cylinder lifting height [mm]	130	130	130
Outlet connection: flange DN 400 / adaptation	● / ^	● / ^	● / ^

Equipment

Middle part - Protective cover manually	○	○	●
Shock mounts / base frame with base plates	● / ○	- / ●	- / ●
Base frame (height according to the arrangement)	○	○	○
Container locking	-	●	●
Linear vibrator with swivel arm	-	○	●
Vibrator at the container outlet on one side / both sides	-	● / ○	● / ○
Rotary vibrator on the outlet	●	●	●
Base frame with load cells	-	○	●
Inflatable gaskets between container / discharge station	●	●	●

Control-Unit

Pneumatic (pressure supply and valves)	●	●	●
UCON Discharge-Unit separate operator panel*	○	●	-
UCON Dosing-Unit with separate operator panel**	-	-	●



● Standard ○ Optional

CHEMICAL CONE VALVE SYSTEM

CHEMICAL CONE VALVE SOLUTIONS FOR DOSING AND DISCHARGING OPERATIONS WITH DIFFICULT TO FLOW BULK MATERIALS



The THIELMANN chemical cone valve offers an operational advantage when working with poor flowing and sticky bulk materials.

Our technical experts will match your bulk material with the right cone valve solution to eliminate bridging, rat-holing and segregation during operations.

THIELMANN chemical cone valves are designed to be safe, modular and easy to use. They can be controlled manually or via fully automated process to ensure precise dosing every time. Speak to a THIELMANN expert today to find the chemical cone valve solution to meet your unique requirements.



Materials	BASIC	Plus	TOP
Product wetted: Stainless Steel AISI 304 / 316L	● / ○ / ○ (1)	● / ○ / ○ (1)	● / ○ / ○ (1)
Frame: Stainless Steel AISI 304 / 316Ti	● (1)	● (1)	● (1)
Seals: Silicon / PTFE / EPDM	● / ● / ○	● / ● / ○	● / ● / ○
Cabinet: Steel painted (RAL 7035) / Stainless Steel	● / ^	● / ^	● / ^
Discharge cylinder lifting capacity by 6 bar / 10 bar [kN]	13 / 21	13 / 21	13 / 21
Discharge cylinder air amplifier (10 bar)	○	○	○
Discharge cylinder lifting height [mm]	130	130	130
Outlet connection: flange DN 400 / adaptation	● / ^	● / ^	● / ^
Equipment			
Middle part - Protective cover manually	○	○	●
Shock mounts / base frame with base plates	● / ○	- / ●	- / ●
Base frame (height according to the arrangement)	○	○	○
Container locking	-	●	●
Linear vibrator with swivel arm	-	○	●
Vibrator at the container outlet on one side / both sides	-	● / ○	● / ○
Rotary vibrator on the outlet	●	●	●
Base frame with load cells	-	○	●
Inflatable gaskets between container / discharge station	●	●	●
Control-Unit			
Pneumatic (pressure supply and valves)	●	●	●
Discharge-Unit separate operator panel*	○	●	-
Dosing-Unit with separate operator panel**	-	-	●

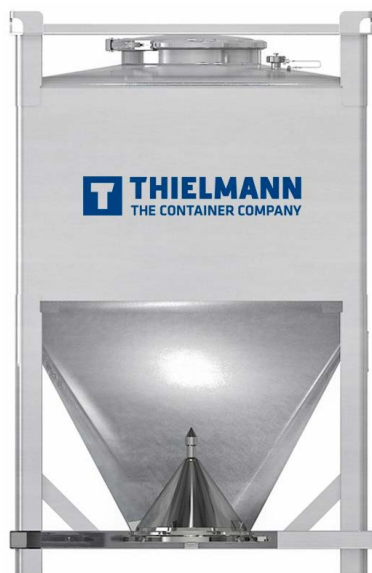
NOTE: All discharging units are available with ATEX and FDA approval upon request.



● Standard ○ Optional

PHARMA CONE VALVE SYSTEM

PHARMA CONE VALVE SOLUTIONS FOR OPERATIONS WITH HAZARDOUS, DIFFICULT TO FLOW BULK MATERIALS



The THIELMANN Pharma Cone Valve offers an operational advantage when working with hazardous, poor flowing and sticky bulk materials for applications with high cleanliness requirements.

Our technical experts will match your bulk material with the right Pharma Cone Valve solution to eliminate bridging, rat-holing and segregation during operations.

Pharma Cone Valves offer the highest quality solution for the transition of highly hazardous materials between container and receiving unit, with zero cross-contamination to keep the product protected from external agents, and particle-free clean room operations.

THIELMANN Pharma Cone Valves are designed to be safe, modular and easy to use. They can be controlled manually or via fully automated process to ensure precise dosing every time.

Speak to a THIELMANN expert today to find the Pharma Cone Valve solution to meet your unique requirements.



Materials	BASIC	PLUS	TOP
Product wetted: Stainless Steel AISI 304 / 316L	● / ○ / ○ (1)	● / ○ / ○ (1)	● / ○ / ○ (1)
Frame: Stainless Steel AISI 304 / 316Ti	● (1)	● (1)	● (1)
Seals: Silicon / PTFE / EPDM	● / ● / ○	● / ● / ○	● / ● / ○
Cabinet: Steel painted (RAL 7035) / Stainless Steel	● / ^	● / ^	● / ^
Discharge cylinder lifting capacity by 6 bar / 10 bar [kN]	13 / 21	13 / 21	13 / 21
Discharge cylinder air amplifier (10 bar)	○	○	○
Discharge cylinder lifting height [mm]	300	300	300
Outlet connection: flange DN 400 / adaptation	● / ^	● / ^	● / ^
Equipment			
Shock mounts / base frame with base plates	● / ○	- / ●	- / ●
Base frame (height according to the arrangement)	○	○	○
Container locking	●	●	●
Linear vibrator with swivel arm	-	○	●
Linear vibrator at the container outlet	-	○	●
Rotary vibrator on the outlet	●	●	●
Base frame with load cells	-	○	●
Sealing container / discharge station: static	●	●	●
Middle part closed with inflatable gasket	- / -	● / -	● / ○
Control-Unit			
Pneumatic (pressure supply and valves)	●	●	●
Discharge-Unit separate operator panel*	○	●	-
Dosing-Unit with separate operator panel**	-	-	●

BUTTERFLY VALVE TECHNOLOGY

THE BUTTERFLY VALVE FOR EASY TO FLOW BULK MATERIAL OPERATIONS



Whether your good-flowability materials are hazardous or require high cleanliness standards, THIELMANN will recommend the right butterfly valve system for your operations.

THIELMANN butterfly valve systems are designed to meet and exceed the rigorous requirements of industries that require the very highest quality solutions for the transition of materials between container and receiving unit as part of bulk handling systems.

Standard butterfly valve systems provide easy transition between container and receiving unit for easy to flow materials, while the split butterfly valve is suited to operations requiring an extra level of control to eliminate dust exposure for contamination-free operations.

Our team of experts will match your requirements with the best butterfly valve solution.

We're got you covered even if your bulk product does not require specialist handling, our engineers will recommend you the best valve to suit your needs.

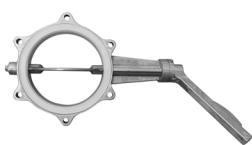
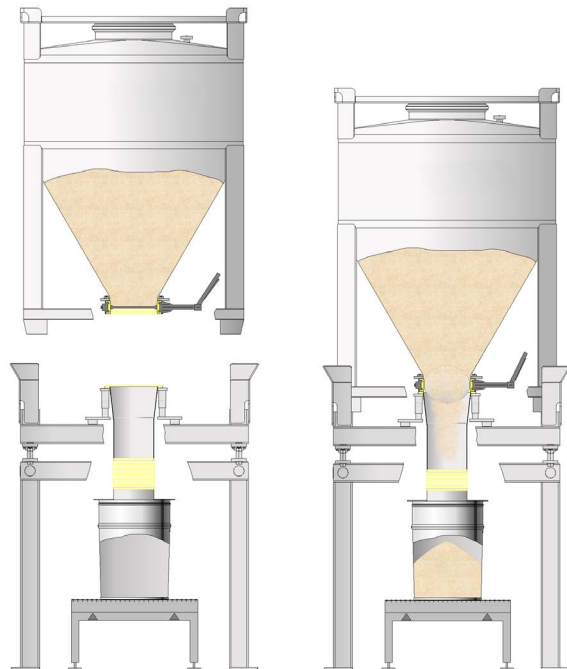
BUTTERFLY VALVE CONTAINER SYSTEMS

Discharging and dosing via butterfly valve.

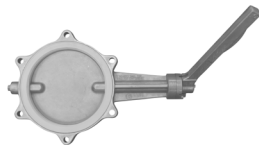
Our butterfly valve systems represent a solution which can be both manually, semi-automatically and fully automatically operated.

The split butterfly valve system has been incorporated into the bulk container systems to fulfill the most demanding pharmaceutical and chemical requirements.

It features hermetically sealed, contamination-free transition between container and receiving unit, which secures that there is no dust exposure. Principal areas of application are highly hazardous bulk materials or contamination free and clean-room requirements such in the pharmaceutical and chemical industries.



Butterfly Valve Opened



Butterfly Valve Closed



Split Valve Closed



Split Valve Open

BUTTERFLY VALVE SYSTEM

THE BUTTERFLY VALVE ADVANTAGE FOR NON-HAZARDOUS MATERIALS WITH GOOD FLOWABILITY



Butterfly valve systems are the best option for non-hazardous, easy flow materials without high cleanliness requirements.

For the easy transfer of non-hazardous bulk materials with good flowability between container and receiving unit, THIELMANN butterfly valves are suited to a range of applications and industries.

Our butterfly valve systems can be manually, semi-automatically or full-automatically operated, giving operators maximum flexibility for their powder bulk handling operations.

Principal areas of application for the butterfly valve systems are non-hazardous, easy to flow bulk materials for operations where high levels of cleanliness are not a primary concern.



SPLIT BUTTERFLY VALVE SYSTEM

THE CONTAMINATION-FREE SPLIT BUTTERFLY VALVE ADVANTAGE FOR HAZARDOUS MATERIALS WITH GOOD FLOWABILITY AND HIGH CLEANLINESS REQUIREMENTS



For operations where cross-contamination and the containment of dust and particles is a central concern.

THIELMANN split butterfly valve systems are designed to meet and exceed the rigorous requirements of industries that require the very highest quality solutions for the transition of materials between container and receiving unit, particularly where highly hazardous bulk materials are in use, or where the product needs to be protected from external agents, as in the Pharma industry.

For the safe and contamination-free transfer of products between container and receiving unit, THIELMANN split butterfly valves control dust and other materials for a safe operating environment, and ensure the integrity of the end product.

Principal areas of application are highly hazardous or delicate, easy to flow bulk materials where contamination levels must be kept to a minimum, and high cleanliness is paramount.



Discharging Stations

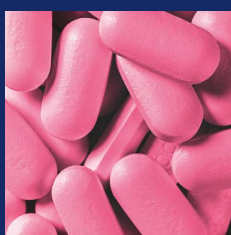
BUTTERFLY VALVE SYSTEMS



Materials	BASIC	PLUS	TOP
Product wetted: Stainless Steel AISI 304 / 316L	● / ○ / ○ (1)	● / ○ / ○ (1)	● / ○ / ○ (1)
Frame: Stainless Steel AISI 304 / 316Ti	● / ○ (1)	● / ○ (1)	● / ○ (1)
Seals: Silicon / NBR	● / ● (1)	● / ● (1)	● / ● (1)
Cabinet: Steel painted (RAL 7035) / Stainless Steel	-	● / ^	- / ^
Equipment			
Middle part - Protective cover manually	-	○	●
Linear vibrator spring-supported / with swivel arm	○ / -	● / ○	- / ●
Container locking	-	●	●
Opening of the container butterfly valve	-	●	●
Base frame (height according to the arrangement)	○	○	○
Shock mounts / base frame with base plates	● / ○	- / ●	- / ●
Control-Unit			
Pneumatic (pressure supply and valves)	-	●	●
Pure pneumatic control unit incl. switches / buttons	-	-	-
Discharge-Unit separate operator panel			
- Siemens Simatic minicontroller			
- Text display: parameter for stroke, pulsing and vibrator mode, error messages PLC Interface	-	●	-
Dosing-Unit with separate operator panel			
- Siemens Simatic S7			
- Graphic display for intuitive Operation, automatic flow control			
- Material based dosing parameter with parameter management	-	-	●
- Dosing tolerance ± 100 [g] (2)			
- Automatic and service mode, scale setup, operator management (password)			
- Graphic of dosing (f/t)			
Optional			
ATEXv	○	○	○
FDA	○	○	○



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