



Handling Systems

# Ergonomic Vacuum Lifters

[WWW.SCHMALZ.COM/VACUUM-LIFTERS](http://WWW.SCHMALZ.COM/VACUUM-LIFTERS)

# Schmalz Vacuum Lifters and Crane Systems

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Vacuum lifters in selected industries



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## FROM TASK TO SOLUTION



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We help you find a solution that allows to work more quickly, more ergonomically, and more efficiently



## SEE OUR VACUUM LIFTERS IN ACTION

The Schmalz Media Center will take you with few clicks to the application examples in your industry segment – user-friendly, informative and practical.

[WWW.SCHMALZ.COM/VIDEO](http://WWW.SCHMALZ.COM/VIDEO)

► Vacuum tube lifter JumboFlex  
for lifting cardboard boxes

▼ Vacuum tube lifters JumboFlex  
for handling packages in goods  
receiving and shipping



## ***The Right Solution for any Task.***

Vacuum handling systems from Schmalz are used in a wide variety of industries to ensure efficient material flows. Our many years of experience and our close relationships with our customers mean we understand your processes, which allows us to produce products to meet the highest standards. They allow loads to be handled faster and more securely while protecting both the materials and your employees. At your request, Schmalz can provide you with a complete workplace solution consisting of a handling system and a crane designed to work perfectly with that system.





## LOGISTICS

### Flexible Handling Solutions for Intra-Logistics and Distribution Logistics

Whether in the goods receiving or shipping area, production logistics or in a parcel distribution center – anywhere goods are moved quickly and frequently, the vacuum tube lifter Jumbo ensures efficient material flows while easing the burden on your employees.



Vacuum tube lifters JumboErgo for lifting cardboard boxes



Vacuum tube lifter JumboFlex for commissioning cardboard boxes of varying sizes and qualities in distribution logistics



Vacuum tube lifter JumboErgo for packaging goods into boxes and handling the sealed boxes



Vacuum tube lifter JumboFlex High-Stack for safe handling of various workpieces at stacking heights of up to 255 cm



WOOD

## Efficient Machine Loading for all Types of Wooden Boards

The woodworking industry has relied on Schmalz handling systems for decades. They are used in combination with CNC machining centers or panel saws to ensure efficient operation and can fulfill the most demanding requirements, such as turning or swiveling workpieces.



Vacuum tube lifter JumboErgo for loading and unloading a CNC machining center



Vacuum lifting device VacuMaster Comfort for turning coated wooden boards by 180°



Vacuum tube lifter JumboErgo with 90° swivel angle for loading a CNC machining center



Vacuum lifting device VacuMaster Multi with 90° swivel angle for handling heavy, porous wooden boards





GLASS

## The Highest Level of Security and Precision

Fragile windows and glass sheets require an especially gentle handling process. Vacuum handling allows a single person to easily move even heavy glass components without the risk of breakage.



Vacuum lifting device VacuMaster Window Comfort for handling windows, glass panes and glass components up to max. 500 kg



Vacuum lifting device VacuMaster Window for vertical handling of glass elements



Vacuum lifting device VacuMaster Window Comfort for loading and unloading a glazing press



Vacuum lifting device VacuMaster Comfort for turning a glass sheet by 180°



## METAL AND SHEET METAL

### Increase Production Efficiency with Effective Machine Loading

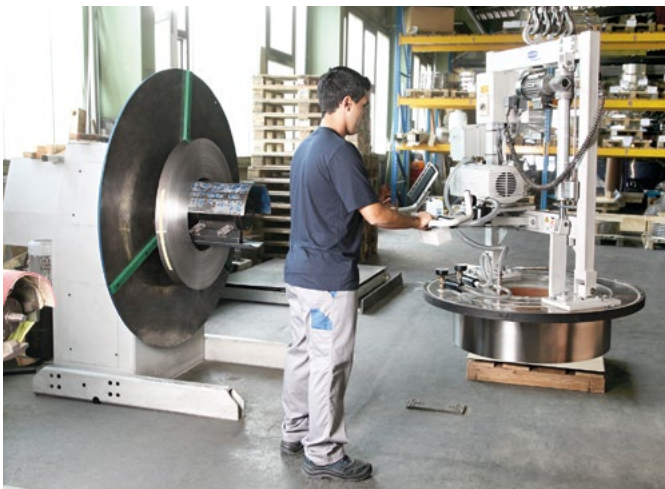
Using Schmalz handling systems to load and unload punching machines, bending machines or CNC laser cutting systems reduces downtime while protecting the surface of sensitive workpieces. They can also be used to optimize handling of metal sections and coils.



Vacuum lifting device VacuMaster Basic for loading and unloading a laser cutting machine



Vacuum lifting device VacuMaster Comfort for loading and unloading a laser cutting machine



Vacuum lifting device VacuMaster Coil with 90° swivel angle for handling coils



Vacuum lifting device VacuMaster Eco for energy-independent handling metal parts





## AUTOMOTIVE

### Move Goods Quickly and Easily

In manufacturing workflows manual processes occur such as loading and unloading of presses, handling of boxes and small load carriers in in-house logistics and supplying components to the line. Vacuum lifters relieve operators of the weight of the workpieces, allowing them to work ergonomically.



Vacuum tube lifter JumboFlex for handling windshields



Vacuum tube lifter Jumbo Low-Stack for handling raw rubber bales



Vacuum tube lifter JumboFlex with pneumatic mandrel gripper for handling wheel rims



Vacuum tube lifter JumboFlex Battery for handling batteries





## CHEMICALS AND PHARMACEUTICALS

### Reliable Handling of Goods in Potential Hazard Zones

In the chemical and pharmaceutical industry, safety is of the utmost importance when handling loads. Schmalz products allow bags, barrels, buckets and jugs to be handled smoothly and efficiently. Special solutions are available for explosion protection areas (see page 23).



Vacuum tube lifter JumboSprint Ex for handling bags in an explosion protection zone



Vacuum tube lifter JumboErgo with mechanical gripper for handling jugs



Vacuum tube lifter JumboFlex for palletizing plastic bags



Vacuum tube lifter JumboSprint for handling barrels



FURTHER INDUSTRIES

## The Right Handling Solution for any Task

Schmalz handling systems ensure efficient material flows in a number of other industries:  
From universally applicable standard devices to customer-specific solutions, Schmalz is your partner for vacuum handling.



**Beverages** | Vacuum tube lifter JumboErgo with mechanical grippers for lifting and turning kegs



**Solar** | Vacuum tube lifter JumboErgo with 90° swivel angle for handling solar panels



**Wind energy** | Vacuum lifting device VacuMaster for GRP components in rotor blade manufacturing weighing several tons and up to 60 m in length

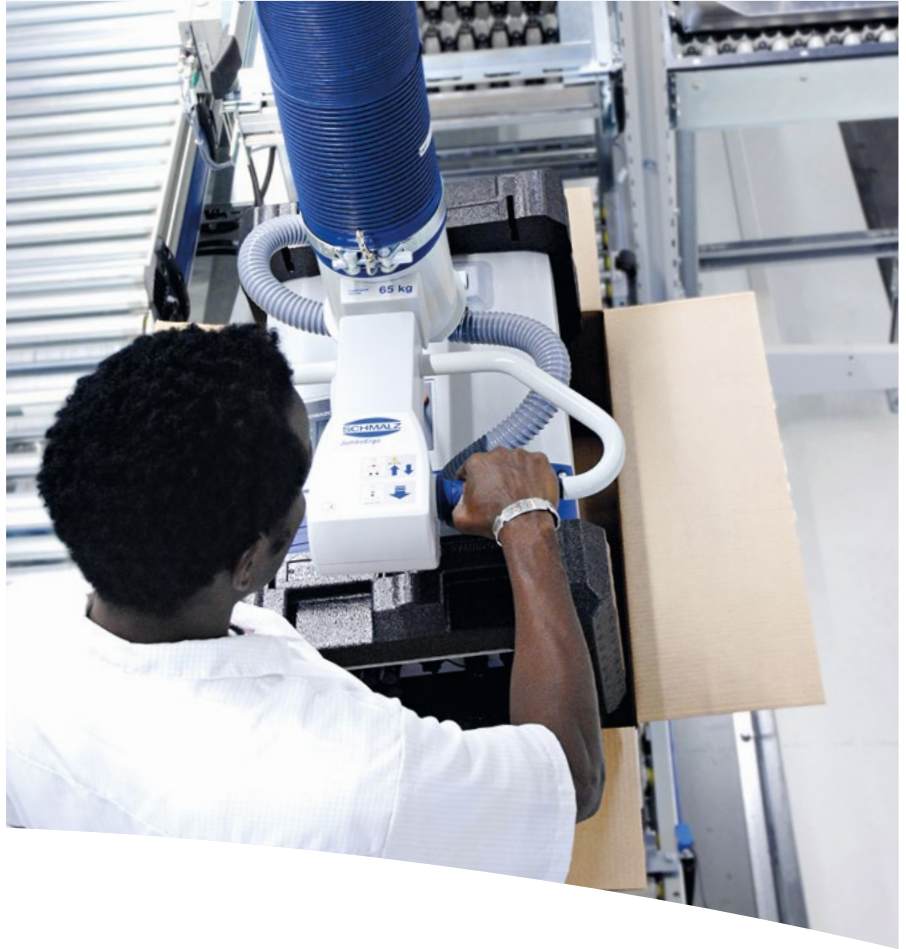


**Airport** | Vacuum tube lifter JumboFlex for handling of luggage pieces



► Vacuum tube lifter JumboErgo  
for packaging goods into boxes

▼ Vacuum tube lifter JumboSprint  
Ex for handling bags in an  
explosion protection zone



## ***Tube Lifters Jumbo – Great Help for Small Loads.***

Cardboard boxes, bags, barrels, wooden boards and a variety of other applications – the vacuum tube lifter Jumbo tackles big jobs in the shortest amount of time. The intuitive operation allows you to move loads quickly, precisely and always ergonomically. It is the ideal aid for machine loading, for shipping and picking areas and for many other lifting applications.

# Vacuum Tube Lifters Jumbo

Move Goods Weighing up to 300 kg Quickly and Easily

## APPLICATION

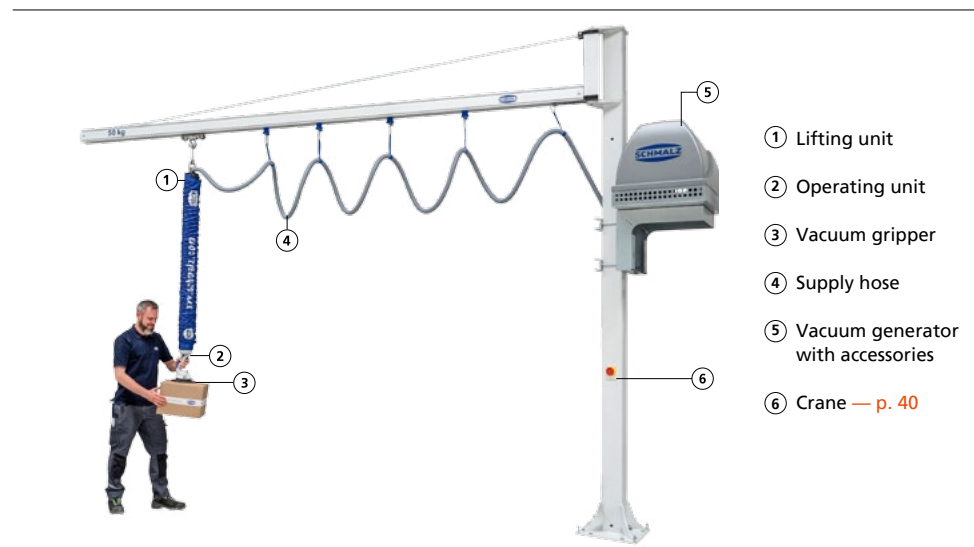
- Fast and frequent lifting and moving of workpieces weighing up to 300 kg
- Handling goods such as cardboard boxes, bags, barrels, buckets and jugs within in-house logistics processes
- Loading and unloading CNC machining centers

## PRODUCT HIGHLIGHTS

- Increased productivity thanks to reduced handling and loading times
- Secure, damage-free gripping by using vacuum
- Minimization of downtime due to employee injury
- Increase in employee motivation
- Only one person for handling

## DESIGN AND FUNCTION

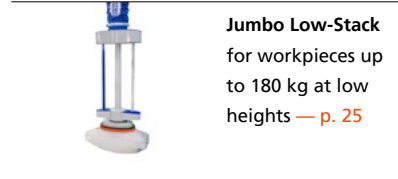
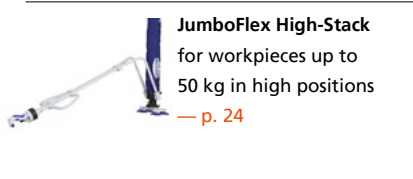
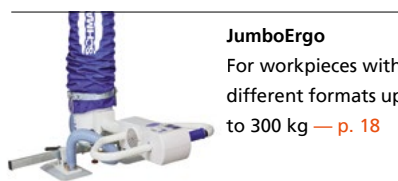
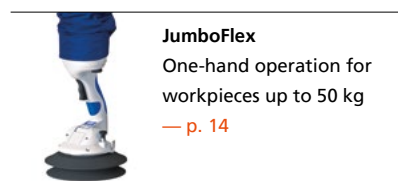
The lifting unit, operating unit, vacuum grippers and vacuum generator on the vacuum tube lifter Jumbo can be configured according to customer specifications. The Jumbo is characterized by its lifting unit, which contracts and extends when lifting and lowering the load. The large effective suction area confers a safe holding of the workpiece. Schmalz also offers a comprehensive range of accessories and a complete system with a highly responsive aluminum crane upon request.



The entire system and its individual parts

## PRODUCT OVERVIEW

JumboFlex, JumboErgo and JumboSprint as well as JumboFlex High-Stack and Jumbo Low-Stack differ in the form and function of their operator handles and are conceived in each case for specific applications.





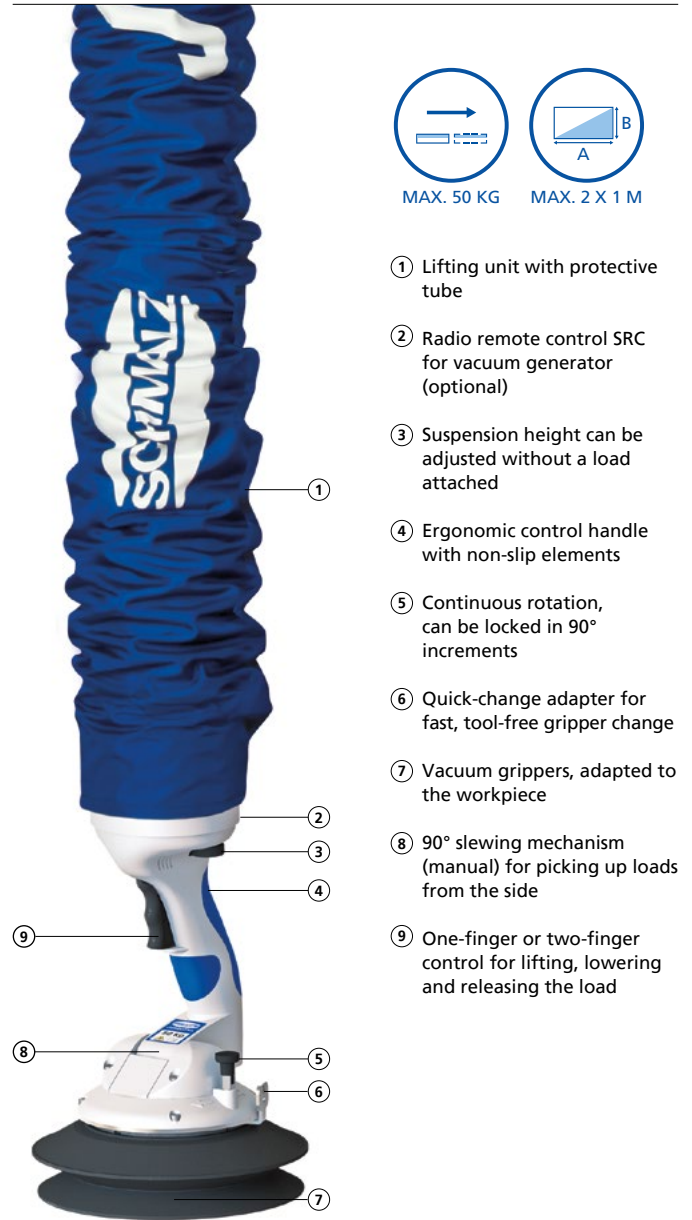
# JumboFlex

Lift Capacity up to 50 kg



JumboFlex 35

The vacuum tube lifter JumboFlex allows you to move lighter goods up to 50 kg ergonomically and with high cycle rates. The control handle fits comfortably in the hand and allows the operator to work for a long period of time without fatigue. With the simple one-finger control, lifting, lowering and releasing the load is extremely



JumboFlex 50

intuitive. The JumboFlex's wide range of features allows it to tackle virtually any task. It comes standard with a quick-change system for replacing the vacuum grippers. Workpieces which are gripped from the vertical side automatically swing back into the horizontal position where they can be continuously rotated.

## VACUUM GRIPPERS

Versatility is key: Schmalz offers the correct vacuum grippers for virtually any application. With the quick-change adapter the gripper can be changed quickly and easily.

Quick-change adapter  
as standard



**Round vacuum gripper**  
For compact goods such as cardboard boxes, barrels, buckets, jugs and cabinets.



**Round vacuum gripper with skirt**  
For optimal sealing on plastic bags and shrink-wrapped packages.



**Double vacuum gripper**  
For stapled, glued, strapped or open cardboard boxes as well as small wooden boards.



**Quadruple vacuum gripper**  
For large cardboard boxes, wooden boards and other flat workpieces.



**Multiple vacuum gripper**  
Universal gripping of various cardboard box sizes and qualities with a minimum occupancy rate of 75 %.



**2-in-1 gripper**  
Combination of a vacuum gripper and a suspension hook for baggage pieces such as suitcases or bags.



**Suspension hook**  
For mechanical suspension of buckets, jugs and other workpieces with a point from which to hang.



**Box gripper**  
For transport and storage boxes from all commercial manufacturers.



**Mandrel gripper**  
Pneumatic mandrel expansion gripper for picking up wheel rims and other components with central bores.

## VACUUM GENERATORS



**Pump EVE**  
Electric vacuum generator with short evacuation times and low power consumption.



**Ejector SBPL**  
Basic ejector with maximum suction rate and low compressed air consumption (up to JumboFlex 35).



# JumboFlex

## ADDITIONAL FEATURES



**JumboFlex Safety+**  
Two-hand release for extra safety. Adjustable, reduced lowering speed, e.g. for sensitive components or for disabled users.



**JumboFlex Easy-Release**  
Reduced residual vacuum for easy release. The load is released using an additional release lever and only when fully lowered, e.g. with quadruple grippers or grippers with bellows suction cups.



**JumboFlex Quick-Release**  
Allows loads to be deliberately ejected during lifting by means of an additional ejection lever. For use in baggage handling at airports or similar applications.



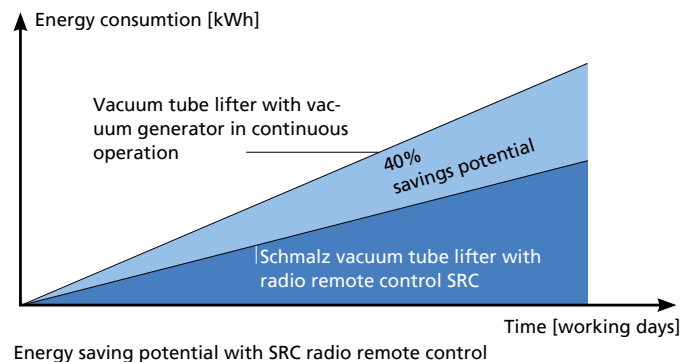
**JumboFlex Air**  
For operating pneumatic gripping systems such as mandrel grippers for handling wheel rims or magnetic grippers for various applications.

## ACCESSORIES



### Save up to 40 % energy at the push of a button

With the SRC radio remote control, you can switch the vacuum generator off and on again during work breaks directly at the operating element. The radio remote control requires no external energy (integrated induction generator) and is operated at the push of a button.



### Reduce sound level

The silencer box SBB reduces the sound of the vacuum generator and protects it from external contamination.



### Secure storage

The storage rack AB-JU can be used to store the JumboFlex when not in use in order to protect the lift tube and vacuum grippers.

## TECHNICAL DATA



The vacuum tube lifter JumboFlex can be configured specifically based on the requirements of each individual application due to its modular design. The technical data varies depending on the configuration and on the vacuum gripper chosen.

### Vacuum generator

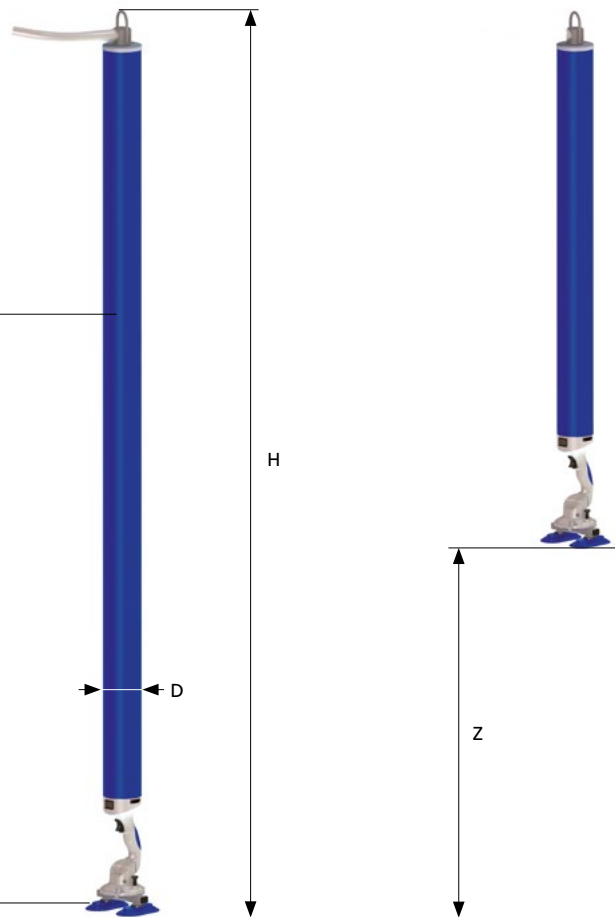
- Pump with 25, 40, 50 or 67 m<sup>3</sup>/h suction capacity
- Ejector with 52 m<sup>3</sup>/h suction capacity

### Lifting unit

- Max. lifting stroke (Z) 1,500 mm or 1,800 mm
- Diameter (D) 80, 100 or 120 mm

### Vacuum gripper

- Height from 50 mm up to 100 mm



The following technical data are standard values.

Jumbo type	Max. lift capacity [kg]	Workpiece format* [mm]		Max. lifting speed [m/min]	Max. lifting stroke Z [mm]	Height H** [mm]		Lift tube Ø D [mm]
		Minimum	Maximum			With vacuum pump	With vacuum ejector	
Flex 20	20	200 x 200	2,000 x 1,000	60	1,500	2,500	2,680	80
	20	200 x 200	2,000 x 1,000	60	1,800	2,800	2,980	80
Flex 35	35	200 x 200	2,000 x 1,000	60	1,500	2,500	2,680	100
	35	200 x 200	2,000 x 1,000	60	1,800	2,800	2,980	100
Flex 50	50	200 x 200	2,000 x 1,000	60	1,500	2,500	2,680	120
	50	200 x 200	2,000 x 1,000	60	1,800	2,800	2,980	120

\*Depends on the vacuum gripper chosen

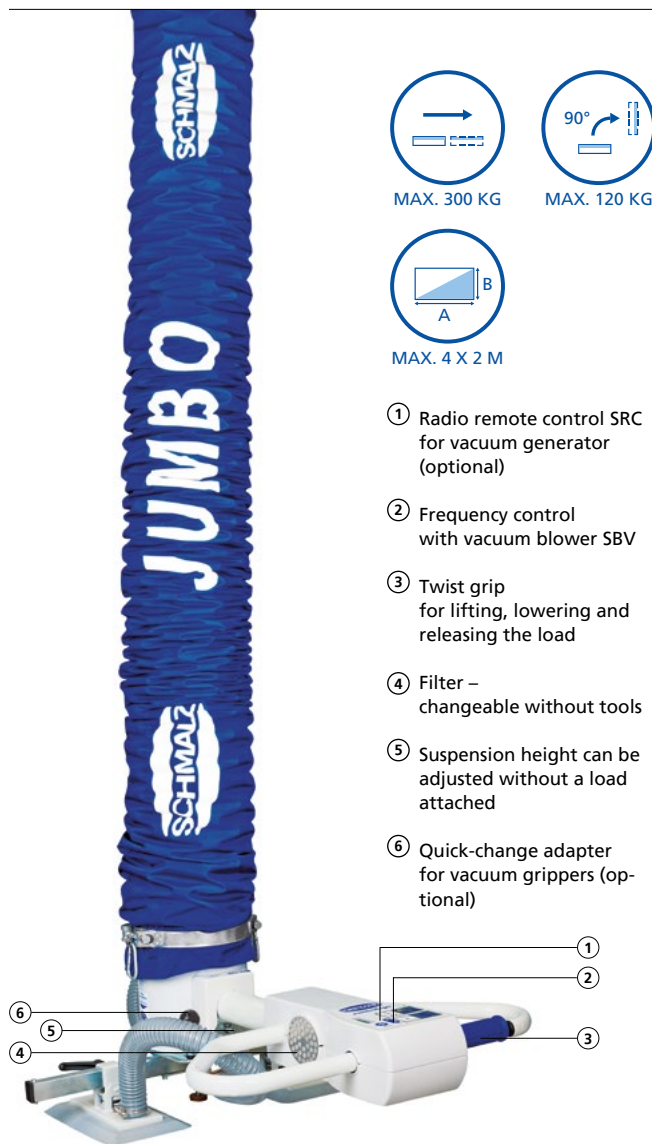
\*\*Vacuum grippers not included (total height = H + height of the vacuum gripper)



# JumboErgo and JumboSprint

Lift Capacity up to 300 kg

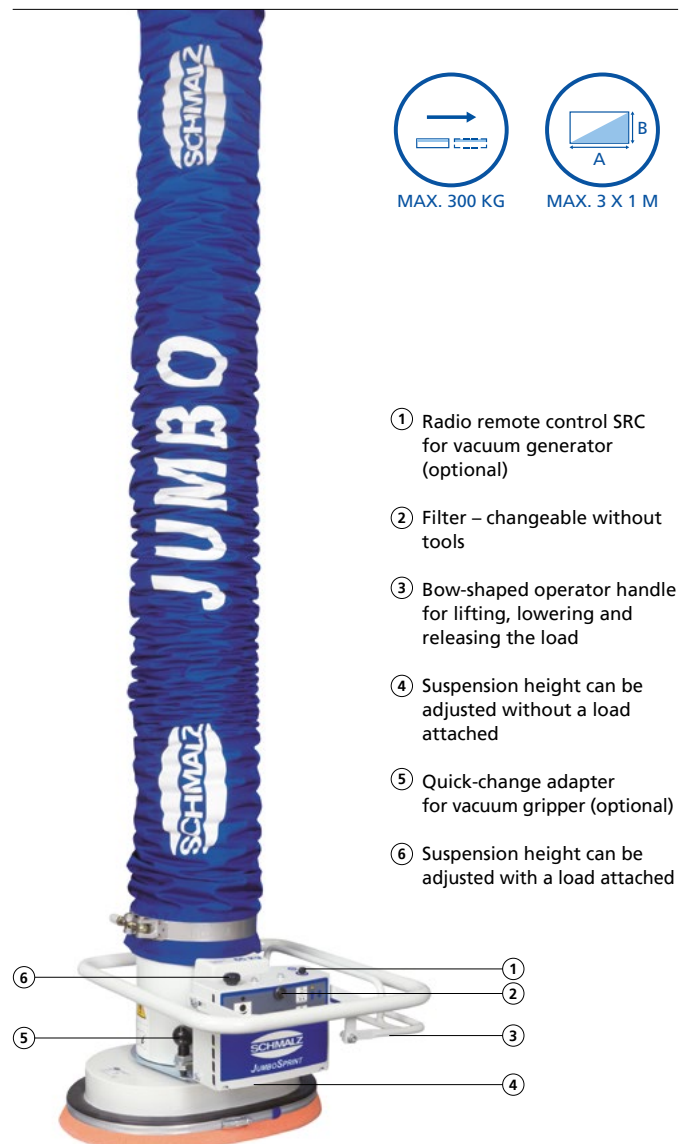
One modular system, two product types: The vacuum tube lifters JumboErgo and JumboSprint share a common technical basis but differ in terms of their operator handles.



## JUMBOERGO

### For workpieces of many different shapes and sizes

The twist grip on the JumboErgo is designed to operate like a motorcycle throttle. Large and heavy loads such as wooden boards, cardboard boxes and solar panels can be moved gently and precisely. The length of the operator handle can be varied, which allows the user to always maintain a safe distance from the load.



## JUMBOSPRINT

### For compact workpieces

The JumboSprint is equipped with a bow-shaped operator handle which extends all the way around the unit. This allows the user to optimally position it on compact goods such as bags or rubber bails. The load is raised by pulling up on the handle lever and lowered by pushing down.



**Quick-change adapter**  
(optional)

## VACUUM GRIPPERS

Versatility is key: Schmalz offers the right vacuum grippers for virtually any application. With the quick-change adapter the gripper can be changed quickly and easily.



**Single vacuum gripper**  
For compact goods such as cardboard boxes, barrels, buckets, jugs and cabinets.



**Single vacuum gripper, long**  
For pallets, narrow cardboard boxes, beams, square tubes and other elongated workpieces.



**Round vacuum gripper**  
For barrels, buckets or stone slabs with rough surfaces.



**Sack gripper**  
For paper and plastic bags, raw rubber bails and shrink-wrapped packages.



**Double vacuum gripper**  
For cardboard boxes, crates or sheets. The vacuum grippers can be continuously adjusted along the beam.



**Vacuum area gripper FMP**  
For pallets, sections or cut pieces where the vacuum gripper is not fully covered by the workpiece. The grippers can be continuously adjusted along the beam.



**Quadruple vacuum gripper**  
For large cardboard boxes, sheets and non-rigid pieces. The vacuum grippers can be continuously adjusted lengthwise and crossways.



**Multiple vacuum gripper**  
For uneven workpieces such as foil trays or unstable cardboard boxes. The individual vacuum grippers optimally compensate for any unevenness.

## MODULAR GRIPPER SYSTEM



**Modular system for configuring custom grippers**  
In addition to a large number of pre-configured grippers, the modular gripper system adds additional configurations to the Jumbo product range. You can easily configure multiple vacuum grippers that are custom tailored to the respective application.

## VACUUM GENERATORS



**Blowers SBM, SBL, SBV**  
Electric vacuum generators for workpieces up to 300 kg. The frequency controlled blower SBV is continuously variable and its power can be adjusted to changing loads.



**Ejector SEM**  
Compact, compressed air vacuum generator with high flow rate for workpieces weighing up to 85 kg.



# JumboErgo and JumboSprint

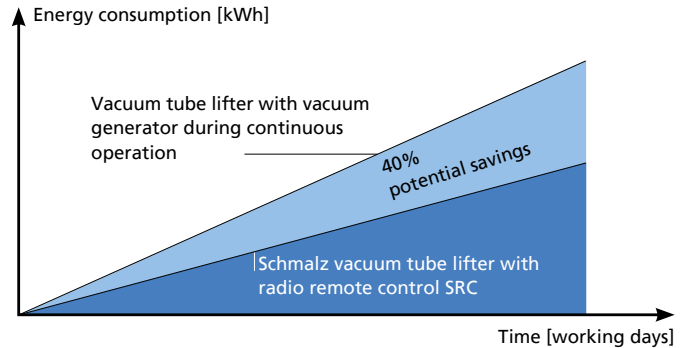
## ACCESSORIES



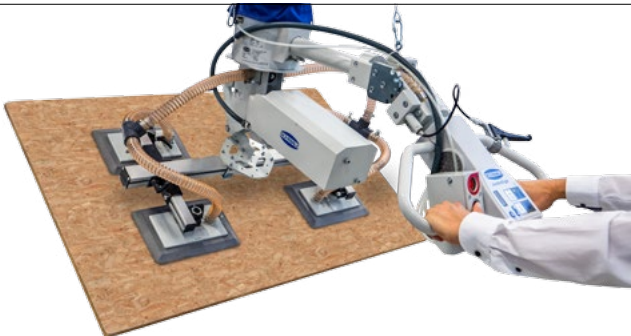
SRC

### Save up to 40% in energy with the push of a button

With the radio remote control SRC, you can directly switch off the vacuum generator on the operator handle when not in use and then back on again. The radio remote control is activated by a simple button push and needs no energy source due to an integrated solar cell.



Potential energy savings with radio remote control SRC



### Swivel workpieces by 90°

With the push of a button, the pneumatic swiveling unit PSE allows the user to swivel workpieces weighing up to 120 kg securely and in an ergonomic fashion.



### Continuously rotate workpieces

With the rotation unit DE, gripped workpieces weighing up to 200 kg can be continuously rotated and positioned precisely.



### Maximize stack heights

High stacking heights are no problem with the movable operator handle (only for JumboErgo). An optional locking mechanism allows it to be fixed at different angles.



### Instantly release workpieces

The venting unit BEL allows non-porous workpieces to be released from the vacuum gripper and set down.

## ACCESSORIES



### Reduce the sound level

The silencer box SBB reduces the sound level of the vacuum generator and protects it from outside dirt. It can be easily mounted on the optional blower mounting platform.



### Protection against dirt

The dust filter STF keeps dirt particles away from the vacuum generator and is always recommended to protect the generator. An optional differential pressure monitor with a signal lamp indicates when the dirty filter has to be changed.



### Spring balancer for long operator handles

The spring balancer FZG keeps the tube lifter JumboErgo balanced and is recommended if the operator handle is longer than 750 mm.



### Protection against wear

The protective tube prevents mechanical damage to the lift tube and is easy to clean. The retaining net protects the vacuum grippers and the lift tube when the tube lifter is not in use and allows for space-saving storage.



### Protection against thermal overload

Motor-protection switch MSS for switching on the vacuum and protection against overvoltage.



# JumboErgo and JumboSprint

## Technical Data



The vacuum tube lifters JumboErgo and JumboSprint can be configured specifically based on the requirements of each individual application due to their modular design. The technical data varies depending on the configuration and on the vacuum gripper chosen.

### Vacuum generator

- Blower with 155, 185 or 220 m³/h suction capacity
- Ejector with 132 m³/h suction capacity

### Lifting unit

- Max. lifting stroke (Z) 1,700 mm or 2,100 mm
- Diameter (D) 120 mm up to 305 mm

### Operator handle

Operator handle length (L)

- JumboErgo: 350 mm up to 1,000 mm
- JumboSprint: 155 mm up to 500 mm

### Vacuum gripper

Height around 80 mm up to 155 mm

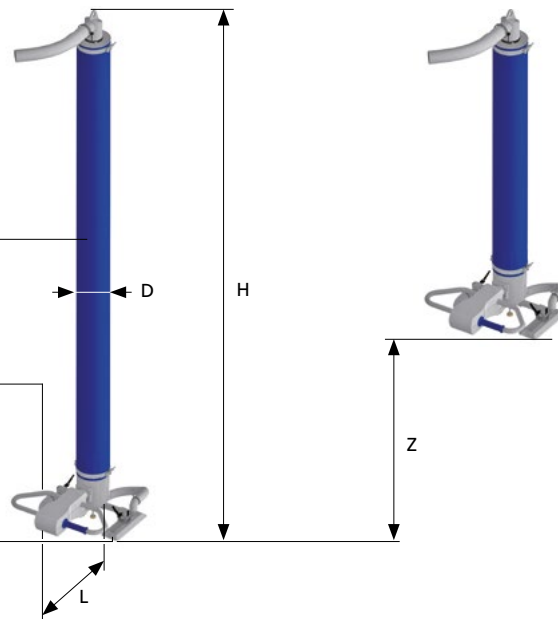


Fig. shows JumboErgo

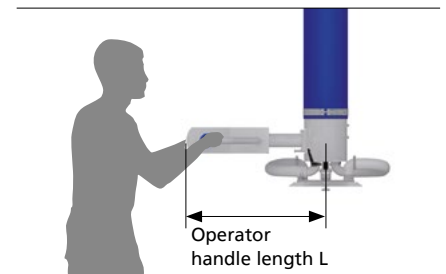
The following technical data are standard values.

Type	Workpiece format*		Operator handle length L [mm]	Max. lifting speed [m/min]	Max. lifting stroke Z [mm]	Height H** [mm]
	Maximum	Maximum				
JumboErgo	300 x 200	4,000 x 2,000	350 – 1,000	60	1,700	2,850
	300 x 200	4,000 x 2,000	350 – 1,000	60	2,100	3,400
JumboSprint	300 x 200	3,000 x 1,000	155 – 500	60	1,700	2,850
	300 x 200	3,000 x 1,000	155 – 500	60	2,100	3,400

A lift capacity of 140 kg and higher applies: lifting stroke Z +160 mm, height H +250 mm

\*Depends on the vacuum gripper chosen

\*\*Vacuum gripper not included (total height = H + height of the vacuum gripper)



The operator handle for the JumboErgo is designed with safety in mind, allowing the operator to maintain a safe distance when oversized workpieces are being lifted.

## LIFT CAPACITIES

Jumbo type	Max. lift capacity [kg]		Ø Lift tube D [mm]	Max. lift capacity							
	Horizontal	90° swivel		35 kg	45 kg	65 kg	85 kg	110 kg	140 kg	200 kg	300 kg
Ergo/Sprint 35	35	–	120	➔							
Ergo/Sprint 45	45	30	140	➔	➔						
Ergo/Sprint 65	65	50	160	➔	➔	➔					
Ergo/Sprint 85	85	70	178	➔	➔	➔	➔				
Ergo/Sprint 110	110	90	203	➔	➔	➔	➔	➔			
Ergo/Sprint 140	140	120	230	➔	➔	➔	➔	➔	➔		
Ergo/Sprint 200	200	–	250	➔	➔	➔	➔	➔	➔	➔	
Ergo/Sprint 300	300	–	305	➔	➔	➔	➔	➔	➔	➔	➔



## JumboSprint Ex

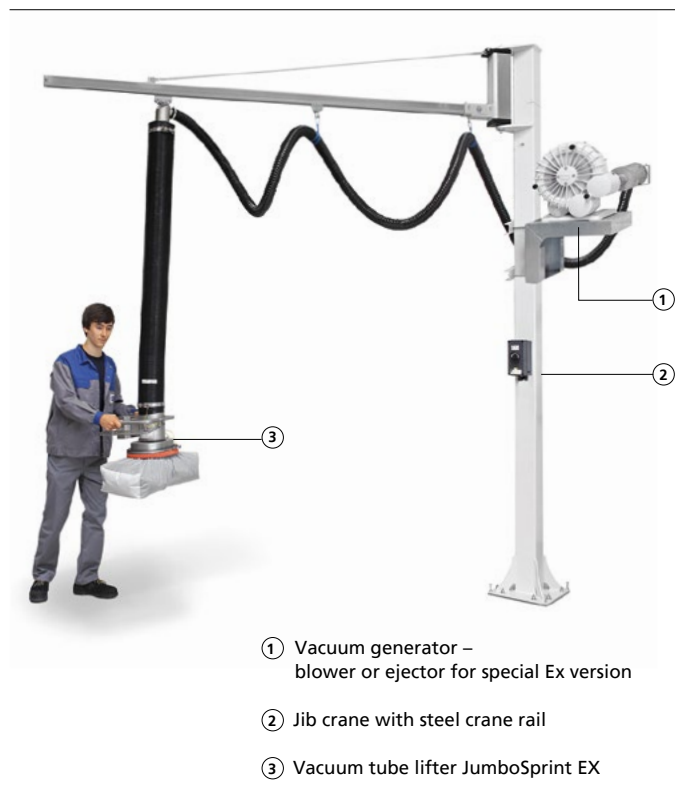
Safe Handling in an Explosion Protection Zone

### APPLICATION

- Efficient handling of loads weighing up to 250 kg in explosion protection zones
- Lifting of bags, barrels, cardboard boxes, jugs, buckets and varnish/paint containers
- Preparation and positioning of filled bags, e.g. for emptying into hoppers or mixers
- For use in explosion protection zones 1/21 and 2/22
- Certified according to ATEX 2014/34/EU standard – Can be used throughout Europe without country-specific certificate

### PRODUCT HIGHLIGHTS

- Operator handle and vacuum grippers made from stainless steel
- All conductive parts are connected with a potential equalization
- Conductive lift tube made from a special material
- Vacuum generator either compressed air driven (ejector up to 85 kg) or electric (blower up to 250 kg)
- Various vacuum grippers in explosion protection design
- Easily change vacuum grippers using the quick-change adapter (optional)
- Complete system for vacuum tube lifter and steel jib crane for explosion protection zone available



### AREAS OF APPLICATION

Explosion zone	Vacuum generator	Max. lifting stroke [mm]	Max. lift capacity					
			45 kg	65 kg	85 kg	110 kg	140 kg	250 kg
1/21	Ejector	1,700 / 2,100	→	→	→			
2/22	Ejector	1,700 / 2,100	→	→	→			
	Blower	1,700 / 2,100	→	→	→	→	→	→





## JumboFlex High-Stack

For optimal use of space in storage areas and transport equipment

### APPLICATION

- Ideal for stacking cardboard boxes and bags in the optimum ergonomic range up to a stacking height of 255 cm
- Ergonomic movement of compact goods up to 50 kg at high cycle frequencies
- Ergonomic movement of various goods to ensure efficient material flows, e.g. in intralogistics applications
- Workpieces near floor height can be handled while maintaining upright posture



JumboFlex High-Stack when handling bags

### DESIGN AND FUNCTION

- Lifting unit (1) with sturdy lifting tube and integrated rotary union for continuous rotation of the tube lifter
- Vacuum generation by means of an electric pump
- Extended ergonomic one-handed control handle (2) with guide bars and a safety feature for releasing the workpiece
- Continuously rotatable vacuum grippers (3) that can be replaced without tools for a wide range of workpieces



### PRODUCT HIGHLIGHTS

- Optimal use of space in storage areas and transport equipment
- Best possible ergonomics thanks to configurable handle length and continuously adjustable guide bar
- Integrated vacuum feed for minimum wear and avoidance of interfering contours
- Reduced residual vacuum at the gripper makes it easy to release the workpiece
- Universally applicable with standard quick-change system for replacing the extensive range of gripper accessories

Design JumboFlex High-Stack



MAX. 180 KG

## Jumbo Low-Stack

Ergonomically picking up workpieces from low heights

### APPLICATION

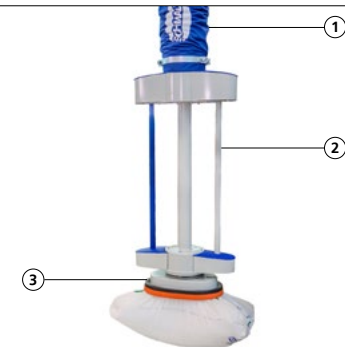
- Ideal for picking up and depositing workpieces up to 80 kg from low heights while maintaining upright posture
- Ergonomic handling in low and medium height working areas
- Ergonomic loading and unloading of transport containers, allowing you to reach deeply into grid boxes, crates, and cardboard boxes
- Fast and frequent lifting and moving of crates, bags and other airtight workpieces



Jumbo Low-Stack when handling bags

### DESIGN AND FUNCTION

- Shortened lifting unit (1) with sturdy lifting tube and integrated rotary union for continuous rotation of the tube lifter
- Vacuum generation by electric blower
- Operator handle (2) with lateral twist grip for lifting, lowering and releasing the load and integrated mechanism for adjusting the suspension height without load
- Individually selected vacuum grippers (3) for a wide variety of workpieces



### PRODUCT HIGHLIGHTS

- Sustained reduction of back pain by maintaining upright posture while handling at low heights
- Intuitive and reliable operation – the twist grip slides through your hand during the lifting movement without the need to change your grip
- Can be used for a wide range of workpieces and transport containers thanks to the wide range of grippers
- Compact design that is ideal for reaching into narrow containers

Design Jumbo Low-Stack

- ▶ System consultants in the field are happy to advise you on-site
- ▼ Experienced service technicians can perform the entire installation upon request



## ***Your Project in Good Hands***

With a vacuum handling system from Schmalz, you're choosing more than just a product. We help you find a solution that allows you to work more quickly, more ergonomically, and more efficiently. Our expertise in designing and constructing systems is a result of our years of experience and the comprehensive knowledge of our employees.



# Decide

By Deciding on Schmalz, You're Choosing ...

## Maximum Safety and Reliability

Safety for the operator and process reliability are our main priorities when developing handling systems. All Schmalz products meet or surpass the currently applicable European and international safety standards:

- Consistent observation of safety factors and compliance with safety regulations
- Safe operation with warning and protective systems
- Deliberated operating concept to prevent errors during operation
- High-quality products that are "Made in Germany"
- Comprehensive service package



Annual UVV inspection by Schmalz service technicians

## Working Ergonomically

Musculoskeletal disorders are the most often-cited reason for absence and sick leave from work. One cause of these disorders is lifting and carrying loads during the workday. Even when handling lighter loads, employees often move several tons per shift. For this reason, experts recommend using lifting aids for lifting and carrying even lighter loads. Vacuum handling systems from Schmalz are the perfect tools for lifting and carrying both light and heavy loads. The ergonomic working posture when using these tools is gentle on the spine and the muscles of the back, minimizing the risk of absences due to employee injuries.

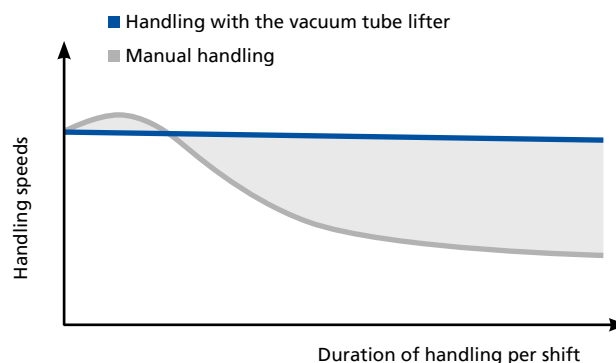
Age range	Physically Reasonable Loads			
	Occasional lifting and carrying (no more than 1x per hour)		More frequent lifting and carrying (more than 2x per hour)	
	Women	Men	Women	Men
15 – 18 years old	15 kg	35 kg	10 kg	20 kg
19 – 45 years old	15 kg	55 kg	10 kg	30 kg
> 45 years old	15 kg	45 kg	10 kg	25 kg

Recommendation by the German Federal Ministry of Labour and Social Affairs for implementing the European Directive 90/269/EWG

## Increased Productivity

Vacuum handling systems from Schmalz make your working processes not only more ergonomic, but also more productive:

- Handling speeds at a consistently high level
- Reduced work-related strain increases employee motivation
- Unproductive downtimes, such as during machine loading, are reduced
- Gentle handling minimizes waste






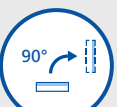

Comparison of handling speeds between handling with the vacuum tube lifter and manual handling

# Select

## Jumbo or VacuMaster?

You can select which handling system is the ideal solution for your application based on the following characteristics.

### YOUR APPLICATION

	Max. lift capacity 300 kg		2,000 kg		
Workpiece	Mainly porous and permeable e.g. cardboard boxes, bags and wooden boards		Mainly smooth and airtight e.g. metal plates and glass sheets		
Workpiece format	Max. 4,000 mm x 2,000 mm		Max. 8,000 mm x 2,000 mm		
Type of handling	Horizontal  MAX. 300 KG	90° swiveling  MAX. 120 KG	Horizontal  MAX. 2000 KG	90° swiveling  MAX. 1000 KG	180° turning  MAX. 500 KG
Lifting cycles per hour	up to ~ 500 picks/h		up to ~ 100 picks/h		



### PRODUCT RECOMMENDATION

	Vacuum tube lifter Jumbo	Vacuum lifting device VacuMaster
		
Application	Move goods weighing up to 300 kg quickly and frequently	Move heavy loads weighing up to 2,000 kg ergonomically and securely
Functions	Vacuum-generated holding force and lifting force	Vacuum-generated holding force, lifting force generated by chain hoist
Product information	Page 12	Page 26

Your Schmalz system consultant would be happy to help you select the right system to fit your requirements. Contact us and benefit from our expertise and years of experience in the field of vacuum handling technology:  
[WWW.SCHMALZ.COM/SALESNETWORK](http://WWW.SCHMALZ.COM/SALESNETWORK)

## Design and Function

### VACUUM TUBE LIFTER JUMBO

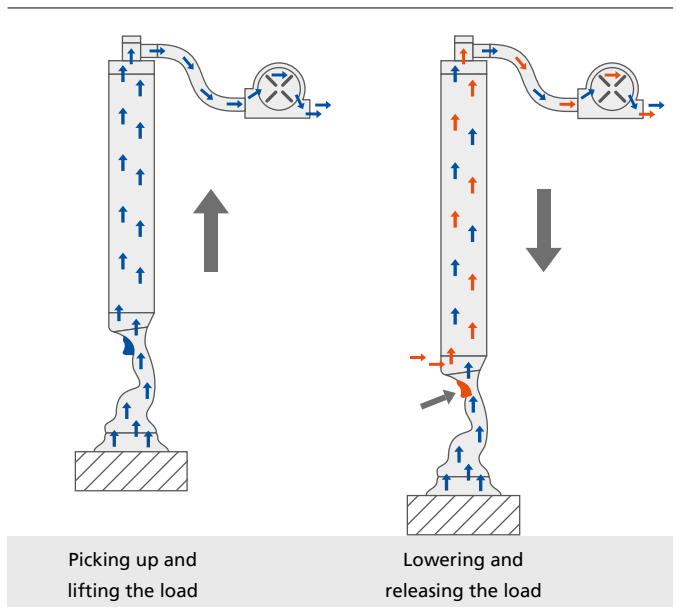
The vacuum tube lifter Jumbo consists of a vacuum generator, a lifting unit, an operating unit and vacuum gripper. The Jumbo only uses vacuum to raise and lower loads.

#### Picking up and Lifting the Load

- The vacuum generator (pump, blower or ejector) generates a vacuum in the system by continually evacuating air.
- The difference between the negative pressure and the ambient pressure draws the workpiece to the vacuum gripper. This is generally called "picking up" the workpiece.
- Once the workpiece has been picked up, the flow rate causes the lift tube to contract. The workpiece is then lifted.

#### Lowering and Releasing the Load

- Operating the control element feeds atmospheric air into the system ("venting"). The vacuum is reduced.
- This causes the lift tube to expand and the load is lowered. The lifting height can be precisely controlled by controlling the amount of atmospheric air that is fed into the system. To release the load, the vacuum is completely eliminated through maximum venting via the operator handle.



### VACUUM LIFTING DEVICE VACUMASTER

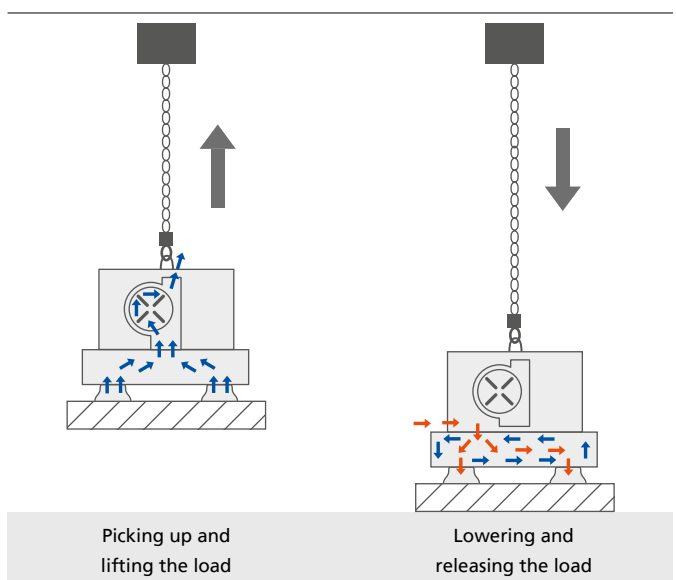
The vacuum lifting device VacuMaster consists of a vacuum generator, load beam with vacuum reservoir and vacuum distributor, an operator handle and suction plates. The vacuum holds the workpiece and a chain hoist is used to lift the workpiece.

#### Picking up and Lifting the Load

- The vacuum generator (pump or ejector) generates a vacuum first in the vacuum reservoir and then in the vacuum distributor by evacuating the air.
- The difference between the negative pressure and the ambient pressure draws the workpiece to the suction plates when the device is placed onto the workpiece. This is generally called "picking up" the workpiece.

#### Lowering and Releasing the Load

- The lifting device with the load that has been picked up is moved up and down by controlling the chain hoist.
- To release the load, the vacuum in the distributor is eliminated through atmospheric venting (activating the valve). The vacuum reservoir remains filled for the next lifting process.

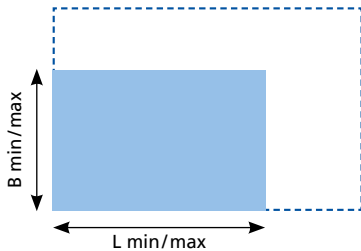




# Design

## Important Information for Designing Your System

When designing the perfect handling solution, there are a large number of deciding factors at play. Using the following questions, you can prepare yourself for the design discussion with your Schmalz system consultant.



### 1. WORKPIECE

**What are the dimensions of your workpiece [mm]?**

Minimum \_\_\_\_\_

Maximum \_\_\_\_\_

**How thick is the workpiece [mm]?**

Minimum \_\_\_\_\_

Maximum \_\_\_\_\_

**How much does the workpiece weigh [kg]?**

Minimum \_\_\_\_\_

Maximum \_\_\_\_\_

**What is the workpiece material and what are the properties of this material (surface, porosity, etc.)?**

Material \_\_\_\_\_

☐ Airtight

☐ Smooth

☐ Porous

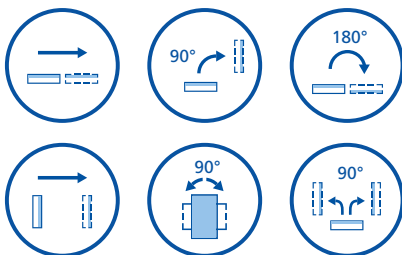
☐ Rough/textured

**Are there sample workpieces available at the location?**

☐ Yes

☐ No

With no airtight workpieces we recommend the implementation of lifting tests.



### 2. HANDLING TASK

**What is the workpiece's starting position?**

☐ Horizontal

☐ Vertical

**How will the workpiece be handled?**

☐ Placed horizontally

☐ Swiveled by 90°

☐ Placed vertically

☐ Rotated by 90°

☐ Turned by 180°

**What are the minimum and maximum stack heights [mm]?**

Consider e.g. building columns in production areas, roof girders or cable bridges

Minimum \_\_\_\_\_

Maximum \_\_\_\_\_

**How frequently must workpieces be lifted?**

Picks per hour \_\_\_\_\_



Vacuum Lifter



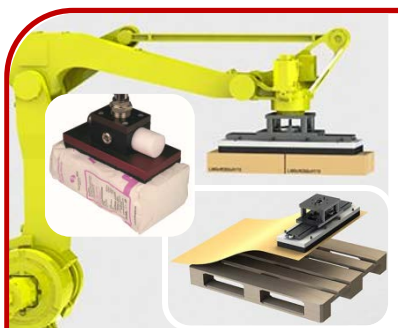
Pump and Cup



Vacuum Conveyor



Air Hoist



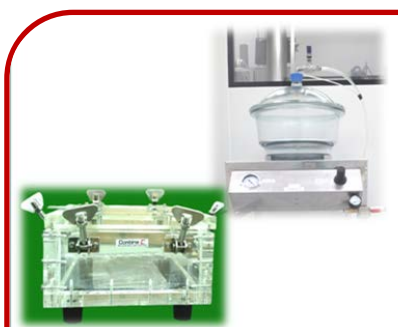
Foam Gripper



Fume Extractor



Compressed Air Products



Leak Test Chamber



Proportioning & Dispensing

**Combina**   
COMBINA CORPORATION LTD.

49/5 Soi Sukhumvit 64, Sukhumvit Road,  
Prakanong Tai, Prakanong, Bangkok 10260

Tel : 02-7416412 to 13 Fax : 02-7416414  
Email : [info@combina.co.th](mailto:info@combina.co.th)  
Line ID : combinathai  
[www.combina.co.th](http://www.combina.co.th)