



**Vacuum Handling Systems**  
Solutions for metal and metal sheet



**Schmalz is the market leader in ergonomic handling solutions and vacuum automation.**

**1,200**

EMPLOYEES  
WORLDWIDE



18 SUBSIDIARIES  
WORLDWIDE

**450**

INDUSTRIAL RIGHTS  
REGISTERED AND GRANTED

**8.5%**

OF TURNOVER FOR RESEARCH  
AND DEVELOPMENT

## OUR PORTFOLIO

The wide range of products in the Vacuum Automation unit includes individual components such as suction cups and vacuum generators, as well as complete gripping systems and clamping solutions for holding workpieces, for example in CNC machining centers. The Handling Systems unit offers innovative handling solutions with vacuum lifters and crane systems for industrial and handicraft applications. The intelligent solutions make production and logistics processes more flexible and efficient, while also preparing them for the increasing trend toward digitalization.

### Vacuum Automation



Components



Systems



Clamping and OEM Solutions

### Handling Systems



Vacuum Lifters and Crane  
Systems



# Vacuum Lifters

## APPLICATIONS



LOGISTICS



WOOD



GLASS

### 4 Practical Examples

Vacuum Lifters in Selected Industries



METAL



AUTOMOTIVE



CHEMISTRY

## PRODUCTS



### 24 Lifting Devices VacuMaster

Move Heavy Loads  
Weighing up to Several Tons  
Ergonomically and Securely

Selection aid: Jumbo or  
VacuMaster? — P. 46

## From task to solution



### SEE OUR VACUUM LIFTERS IN ACTION

Few clicks to the application examples in your industry segment.

[www.ithkl.com](http://www.ithkl.com)



## 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



▶ Vacuum lifting device  
VacuMaster Basic for handling  
metal sheets

▼ Vacuum lifting device  
VacuMaster Multi, for swiveling  
wooden boards by 90°



## ***Lifting Devices VacuMaster – Lighten Your Load.***

The vacuum lifting device VacuMaster from Schmalz is the ultimate workhorse. Whether handling metal plates, wooden boards, plastic sheets, barrels, windows or glass sheets – the VacuMaster tackles even the heaviest tasks with weights up to several tons. For applications where many hands would normally be required, the VacuMaster allows workpieces to be handled effortlessly by just a single operator while protecting the employee's health.



# Vacuum Lifting Devices VacuMaster

## Move Heavy Loads Weighing up to Several Tons Ergonomically

### APPLICATION

For handling large, flat and typically non-porous workpieces, for example:

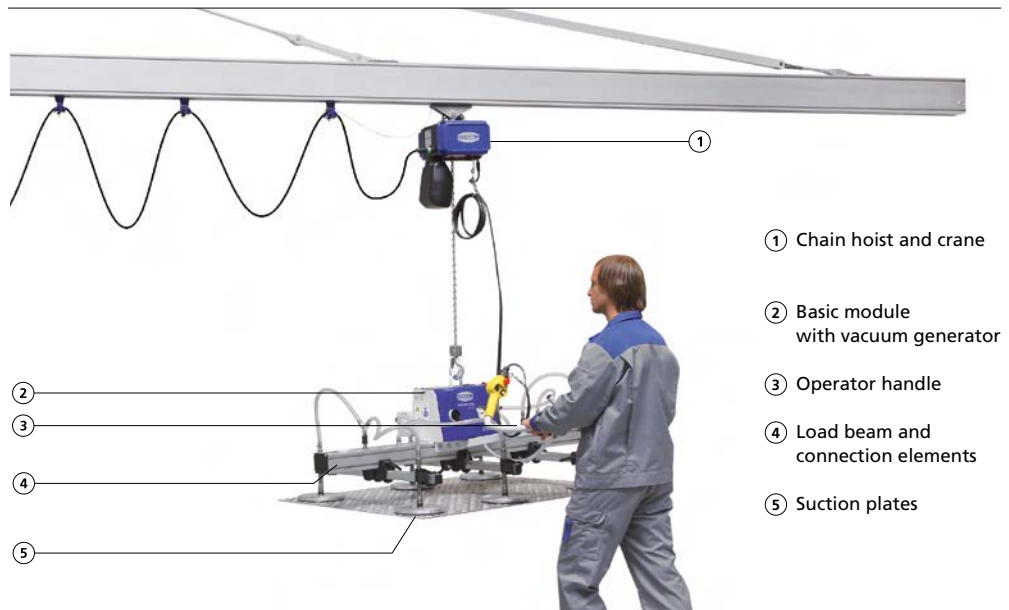
- Loading and unloading CNC laser cutting machines with metal plates
- Loading and unloading CNC machining centers with wooden boards or plastic sheets
- Handling and positioning glass panels and windows during production, framing and installation

### YOUR BENEFITS

- Efficient, non-damaging handling of heavy loads
- To work ergonomically and protect operator health
- Excellent work safety and process reliability thanks to vacuum reservoir and audible warning device
- Long service life due to a robust mixture of steel, aluminum and high-strength plastic
- Low operating costs thanks to controlled vacuum generator with energy saving (Comfort version)

### DESIGN AND FUNCTION

The vacuum lifting device VacuMaster has a modular design. Various basic modules, operator handles, load beams and suction plates allow you to customize the configuration. The necessary suction force is generated by the vacuum generator and transferred to the workpiece via the suction plates. For safety purposes, the aluminum load beam also serves as a vacuum reservoir. A chain hoist is required for lifting or lowering motion, which Schmalz offers along with a compatible crane system.



The entire system and its individual parts

### PRODUCT OVERVIEW

The right solution for any task: With their modular system, the VacuMaster Basic and VacuMaster Comfort cover standard applications weighing up to 750 kg. Schmalz also offers additional lifting devices which are specially designed for the specific requirements of certain industries.

Type	Max. lift capacity						
	100 kg	125 kg	250 kg	500 kg	1,000 kg	1,500 kg	2,000 kg
VacuMaster Horizontal	✓	✓	✓	✓	✓	✓	✓
VacuMaster 90° Swiveling	✓	✓	✓	✓	✓	✓	✓
VacuMaster 180° Turning	✓	✓	✓	✓	✓	✓	✓

--- Additional lift capacities up to more tons on request



**VacuMaster Basic and VacuMaster Comfort**  
Flexible modular system for standard applications weighing up to 750 kg



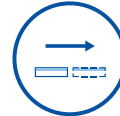
**Additional VacuMaster**  
For special lift capacities and industry requirements



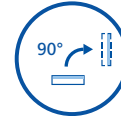
# VacuMaster Basic and VacuMaster Comfort

## Lift Capacity up to 750 kg

The VacuMaster Basic's versatile standard equipment makes it indispensable for many applications. In addition, the VacuMaster Comfort offers an operator handle that brings together all of the device's controls as well as a controlled vacuum generator for reducing energy consumption.



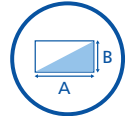
MAX. 750 KG



MAX. 500 KG



MAX. 500 KG



MAX. 8 X 2 M

### VACUMASTER BASIC



- ① Motor protection switch
- ② Vacuum gauge (manometer)
- ③ Vacuum on/off – picks up and releases the load via a highly reliable manual slide valve
- ④ Operator handle – Schmalz chain hoist pendant can be attached
- ⑤ Chain hoist up/down – lifts and lowers the load
- ⑥ Emergency-stop function for chain hoist

### VACUMASTER COMFORT



- ① Vacuum gauge (manometer)
- ② Integrated air-saving function
- ③ Emergency-stop function
- ④ Swivel function – continuous swiveling up to max. 90° or 180°
- ⑤ Vacuum off – secure release of the load requiring two hands
- ⑥ Chain hoist up/down – lifts and lowers the load
- ⑦ Vacuum on – picks up the load
- ⑧ Operator handle with integrated function modules for Schmalz chain hoist



## BASIC MODULE

The basic module is the heart of every VacuMaster. It contains the vacuum generator, an audible warning device as well as all the measuring and control devices. Depending on the application, you can choose from three different basic modules whose shape and design are optimally suited to the handling task.



### Horizontal handling

Standard design with vacuum generator, audible warning device, vacuum gauge (manometer) and motor protection switch. Protection of the components under a robust sheet metal barrier.

- For lift capacity up to 750 kg



### 90° swiveling

Basic version adds to electric drive for jolt-free, continuous swiveling by 90°.

- For lift capacity up to 500 kg



### 180° turning

Basic version adds to electric drive for jolt-free, continuous turning by 180°.

- For lift capacity up to 500 kg

## VACUUM GENERATORS



### Pump EVE

Electric vacuum generator for smooth and suction-tight workpieces weighing up to 750 kg.



### Ejector SEM

Compressed air vacuum generator with high flow rate for porous workpieces weighing up to 250 kg. Only for horizontal handling.



## MANUAL SLIDE VALVE

### Reliable and safe vacuum control

VacuMaster Basic with manual slide valve for high safety by double actuation and anti-trap protection. Prevents unwanted losing of the load.

## LOAD BEAM AND CONNECTION ELEMENTS



### Light, robust and flexible

The combination of aluminum and high-strength plastic allows the cross beams and suction plates to be easily adjusted to quickly adapt to changing formats.



### Integrated vacuum reservoir

The large vacuum reservoir prevents the load from falling in the case of a power failure and makes gripping faster during repeated lifting processes.

## SUCTION PLATES



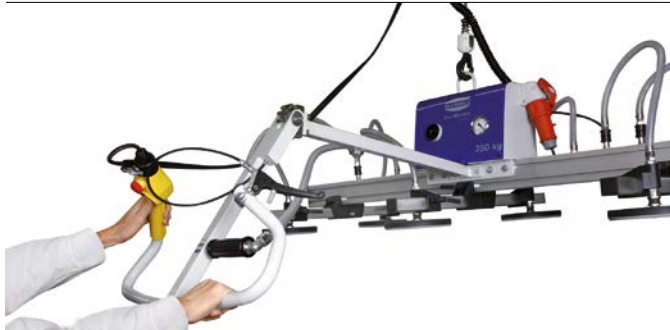
### Versatility for every task

Allows for optimal adaptation to the workpiece and to requirements such as heat resistance, food safety and mark-free gripping. Select from suspension which is rigid, spring-mounted or both flexible and spring-mounted.



# VacuMaster Basic and VacuMaster Comfort

## ACCESSORIES



### Maximize stack heights

Large height differences are no problem with the swiveling and locking operator handle. The working posture remains ergonomic in any position.



### Adapts to changing workpieces

With the vacuum gripper shut-off valve several vacuum grippers can be turned off for handling of cut pieces or pieces with gaps.



### Secure storage of the lifting device

When the lifting device is not in use, the parking stands allow it to be stored securely while protecting the suction plates. This allows the crane to be used for other purposes.



### Quick-connect electrical connection

The CEE plug allows the lifting device to be easily connected to the power supply and then quickly disconnected if necessary (only for VacuMaster Basic).



### Mark-free handling

The suction plate covers prevent the plates from leaving marks on sensitive workpieces such as glass sheets or solar panels.



### Protection against water

The maintenance-free water separator prevents water from entering the vacuum generator during moist processes such as waterjet cutting.



## TECHNICAL DATA



Thanks to their modular system, the VacuMaster Basic and VacuMaster Comfort can be custom configured for any application. The technical data of the devices are dependent on the selected configuration. You can use the following data on pre-configured lifting devices for standard workpiece formats as a guide for determining the recommended values for your VacuMaster. **Proceed as Follows:**

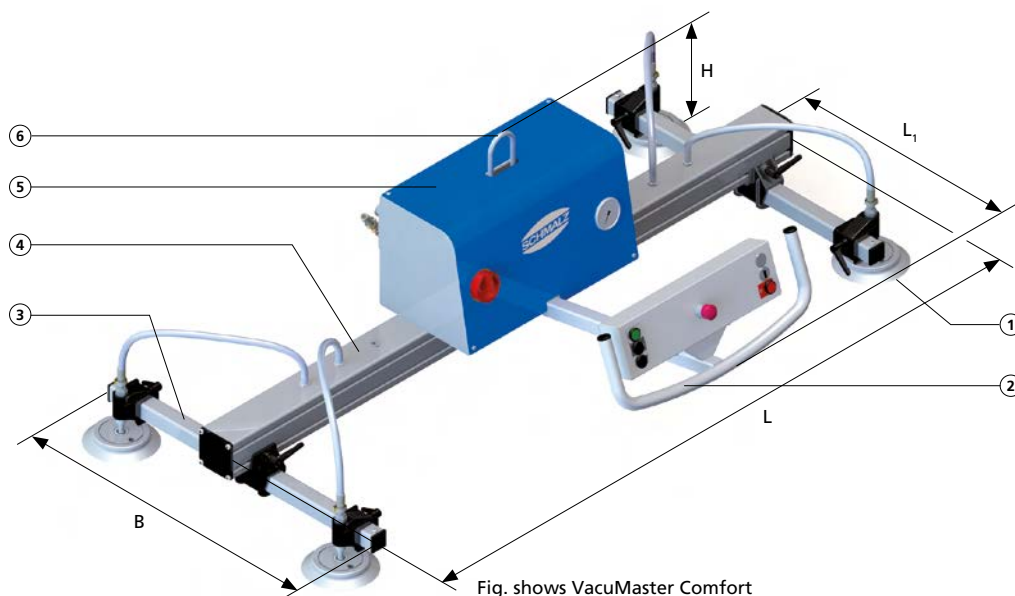
**1** Select type of handling  
e.g. horizontal handling

**2** Select lift capacity  
e.g. 250 kg

**3** Select workpiece format  
e.g. 2,000 x 1,000 mm



## HORIZONTAL HANDLING



- ① Suction plates, diameter 125 mm up to 360 mm
- ② Operator handle ( $L_1$ ) 345 mm up to 1,060 mm
- ③ Cross beams (B) 400 mm up to 1,500 mm
- ④ Main beam (L) 800 mm up to 6,400 mm
- ⑤ Basic module with vacuum generator, vacuum pump with 4, 8, 16, 25 m<sup>3</sup>/h suction capacity, vacuum ejector with 58 m<sup>3</sup>/h suction capacity
- ⑥ Eye for chain hoist, diameter 52 mm

Fig. shows VacuMaster Comfort

VacuMaster type* Max. lift capacity [kg]	Workpiece format [mm]	Dimensions L x B (length x width) [mm]	Overall height H [mm]		Operator handle $L_1$ [mm]	Suction plates**		Weight [kg]	
			Basic	Comfort		No.	Ø [mm]	Basic	Comfort
Basic/Comfort 125	1,000 x 1,000	800 x 750	490	445	655	1	250	38	42
	2,000 x 1,000	1,600 x 750	410	445	645	2	210	42	50
	2,500 x 1,250	1,600 x 750	490	525	745	4	125	52	64
	3,000 x 1,500	2,400 x 1,150	555	590	945	6	125	62	68
	4,000 x 2,000	3,200 x 1,500	555	590	1,045	8	125	80	88
Basic/Comfort 250	1,000 x 1,000	800 x 750	490	445	655	1	360	40	45
	2,000 x 1,000	1,600 x 750	410	445	645	2	250	44	52
	2,500 x 1,250	1,600 x 750	490	525	745	4	210	54	62
	3,000 x 1,500	2,400 x 1,150	555	590	945	6	160	59	67
	4,000 x 2,000	3,200 x 1,500	555	590	1,045	8	125	80	88
Basic/Comfort 500	2,500 x 1,250	1,600 x 750	570	605	760	4	250	71	84
	3,000 x 1,500	2,400 x 1,150	635	670	960	6	210	88	91
	4,000 x 2,000	3,200 x 1,500	635	670	1,060	8	210	106	130
Basic/Comfort 750	3,000 x 1,500	2,400 x 1,150	635	670	960	6	250	91	105
	4,000 x 2,000	3,200 x 1,500	635	670	1,060	8	210	115	122

\*The shown VacuMaster are example configurations: The VacuMaster Basic/Comfort can be adapted flexibly to individual workpiece formats.

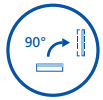
\*\*The indicated number of suction plates is possible for handling of rigid goods. For unstable and thin workpieces the numbers of suction plates will be increased.





# VacuMaster Basic and VacuMaster Comfort

## Technical Data



90° SWIVELING

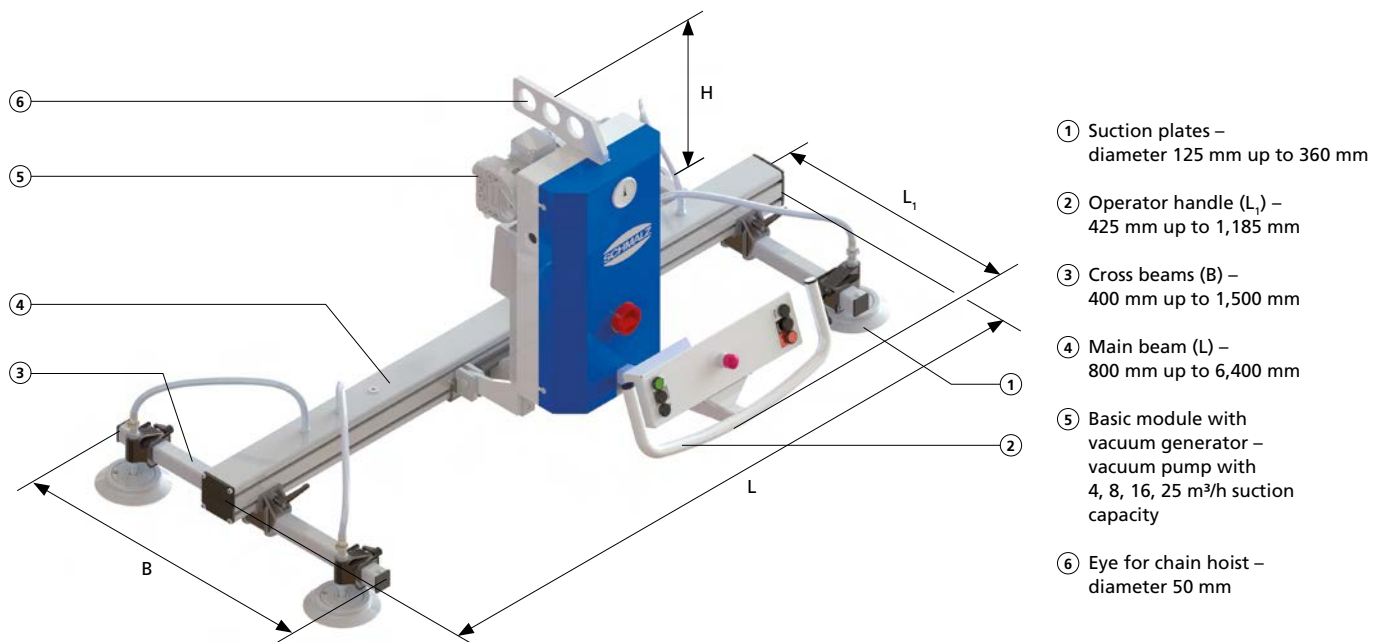
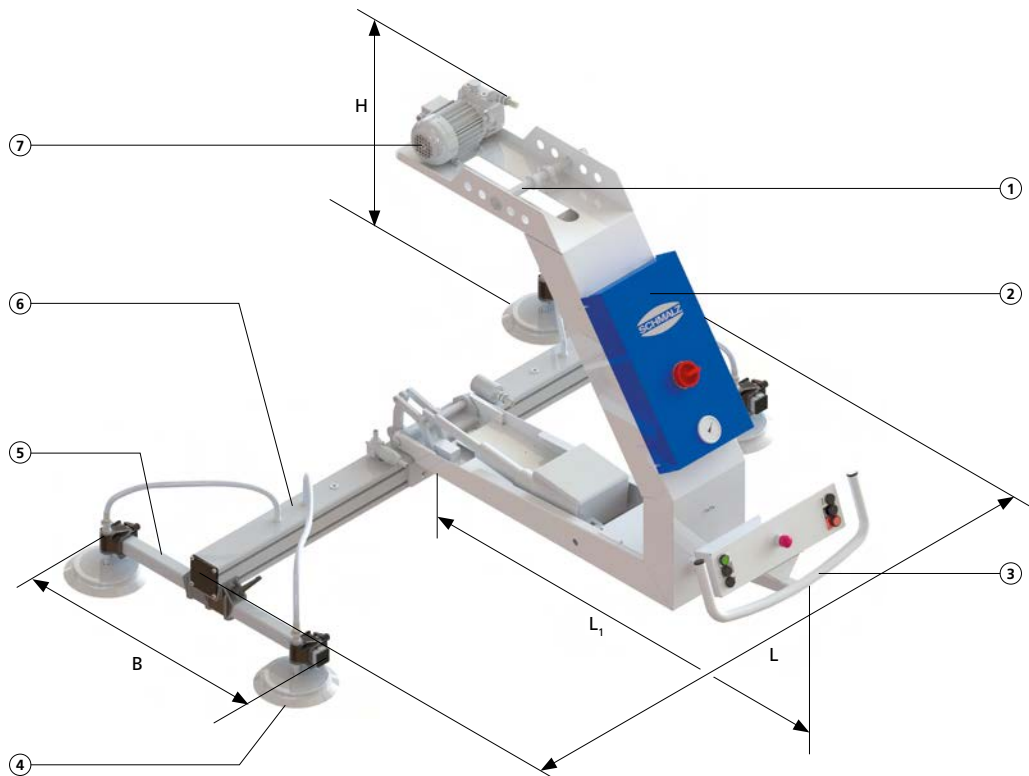


Fig. shows VacuMaster Comfort

VacuMaster type* Max. lift capacity [kg]	Workpiece format [mm]	Dimensions L x B (length x width) [mm]	Overall height H [mm]		Operator handle L <sub>1</sub> [mm]	Suction plates**		Weight [kg]	
			Basic	Comfort		No.	Ø [mm]	Basic	Comfort
Basic/Comfort 125	2,000 x 1,000	1,600 x 750	720	720	725	2	360	74	76
	2,500 x 1,250	1,600 x 750	800	800	725	4	210	79	81
	4,000 x 2,000	3,200 x 1,500	800	800	1,025	8	210	94	101
Basic/Comfort 250	2,500 x 1,250	1,600 x 750	800	800	725	4	360	91	93
	4,000 x 2,000	3,200 x 1,500	800	800	1,025	8	210	102	104
Basic/Comfort 500	2,500 x 1,250	1,600 x 750	1,030	1,030	785	4	360	135	137
	4,000 x 2,000	3,200 x 1,500	1,030	1,030	1,085	8	360	151	153

\*The shown VacuMaster are example configurations: The VacuMaster Basic/Comfort can be adapted flexibly to individual workpiece formats.

\*\*The indicated number of suction plates is possible for handling of rigid goods. For unstable and thin workpieces the numbers of suction plates will be increased.

**180° TURNING**

- ① Adjustment possibility to hook the chain hoist – diameter 25 mm
- ② Basic module
- ③ Operator handle (L<sub>1</sub>) – 1,265 mm up to 1,830 mm
- ④ Suction plates – diameter 125 mm up to 360 mm
- ⑤ Cross beams (B) – 400 mm up to 1,500 mm
- ⑥ Main beam (L) – 800 mm up to 6,400 mm
- ⑦ Vacuum generator – vacuum pump with 4, 8, 16 m<sup>3</sup>/h suction capacity

Fig. shows VacuMaster Comfort

VacuMaster type* Max. lift capacity [kg]	Workpiece format [mm]	Dimensions L x B (length x width) [mm]	Overall height H [mm]		Operator handle L <sub>1</sub> [mm]	Suction plates**		Weight [kg]	
			Basic	Comfort		No.	Ø [mm]	Basic	Comfort
Basic/Comfort 75	1,000 x 1,000	800 x 750	1,150	1,150	1,265	2	250	74	74
	2,000 x 1,000	1,600 x 750	1,150	1,150	1,265	2	250	82	82
	2,500 x 1,250	1,600 x 750	1,220	1,220	1,265	4	210	92	92
Basic/Comfort 125	2,000 x 1,000	1,600 x 750	1,160	1,160	1,265	2	360	87	87
	2,500 x 1,250	1,600 x 750	1,230	1,230	1,265	4	210	92	92
Basic/Comfort 250	2,000 x 1,000	1,600 x 750	1,770	1,770	1,830	4	360	137	139
	2,500 x 1,250	1,600 x 750	1,750	1,750	1,830	8	210	145	147
	4,000 x 2,000	3,200 x 1,500	1,750	1,750	1,830	8	210	165	167

\*The shown VacuMaster are example configurations: The VacuMaster Basic/Comfort can be adapted flexibly to individual workpiece formats.

Technical data for VacuMaster Basic/Comfort 500 on request.

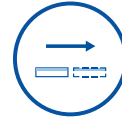
\*\*The indicated number of suction plates is possible for handling of rigid goods. For unstable and thin workpieces the numbers of suction plates will be increased.



VacuMaster Vario in process of loading and unloading a laser cutting machine



UNIVERSAL



MAX. 2000 KG

## VacuMaster Vario

### APPLICATION

Horizontal handling of especially heavy, airtight workpieces weighing up to 2,000 kg

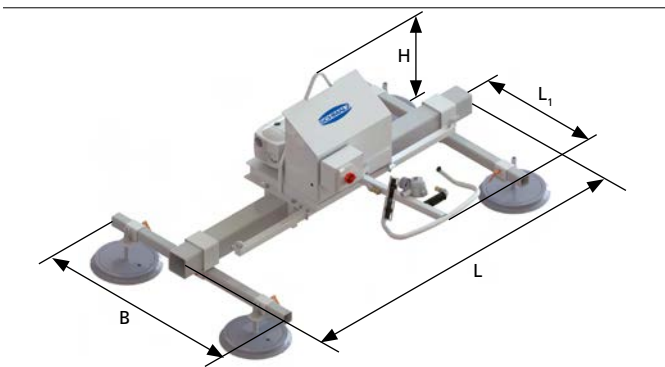
- Loading and unloading machines with large-format metal sheets and plates
- Solutions for heavier loads are also possible, e.g. lifting devices for handling rotor blades weighing several tons and up to 60 m in length

### DESIGN AND FUNCTION

- Modular vacuum lifting device with ergonomic operator handle
- Highly reliable manual slide valve to turn on/off the vacuum
- Electric vacuum pump for short evacuation times
- Robust steel load beam
- Audible warning device and vacuum reservoir for redundant safety in loss of vacuum and power failure respectively
- Large selection of suction plates

### YOUR BENEFITS

- Heavy loads are handled very securely
- Simple adaption to the individual application



Design of VacuMaster Vario

Special VacuMaster Vario with lift capacity of 10 t  
(special applications with lift capacity over 2 t on request)

VacuMaster type	Max. lift capacity* [kg]	Workpiece format [mm]		Dimensions [mm]		Overall height H [mm]	Operator handle L <sub>1</sub> [mm]	Number of suction plates	Weight [kg]
		Minimum	Maximum	L (length)	B (width)				
Vario 1000	1,000	900 x 520	6,000 x 2,000	2,000 – 4,000	1,150	630 – 935	910 – 1,250	1, 4, 8	116 – 252
Vario 2000	2,000	1,230 x 900	6,000 x 2,000	2,000 – 4,000	1,150	820 – 1,000	910 – 1,250	2, 4, 8	231 – 345

\*Higher lift capacities available on request.



VacuMaster Eco for removing steel sheets from a drawer shelving system



UNIVERSAL



MAX. 1000 KG

## VacuMaster Eco

### APPLICATION

Horizontal handling of smooth and airtight workpieces without an external energy source

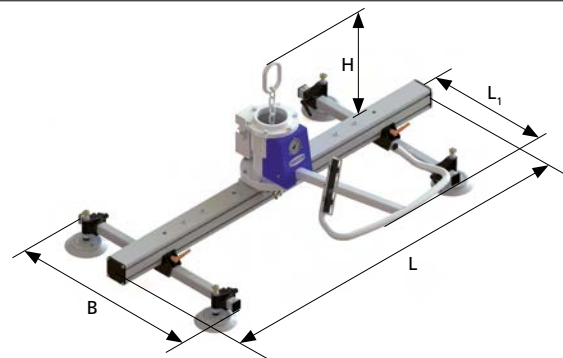
- For example metal sheets/plates, barrels and stone slabs

### DESIGN AND FUNCTION

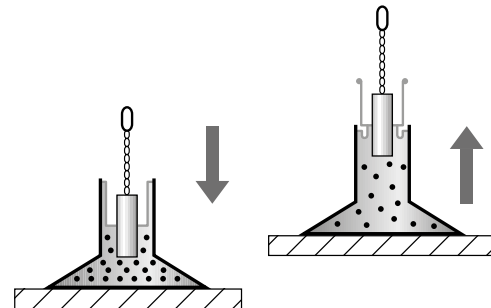
- Modular vacuum lifting device with piston system for vacuum generation without energy
- Vacuum is established/dissipated by the lifting/lowering motion of the chain hoist (chain hoist not included)
- Aluminum load beam with integrated vacuum distributor (up to 750 kg lift capacity)
- Battery-operated warning device with battery test function for warning of fallen vacuum
- Easily adjustable vacuum grippers

### YOUR BENEFITS

- Secure and gentle vacuum handling
- Energy independence allows for flexibility in use
- Quick installation and start of operations
- Minimal operating costs



Design of VacuMaster Eco



Functional principle of VacuMaster Eco

VacuMaster type	Max. lift capacity* [kg]	Workpiece format [mm]		Dimensions [mm]		Overall height H [mm]	Operator handle L <sub>1</sub> [mm]	Number of suction plates	Weight [kg]
		Minimum	Maximum	L (length)	B (width)				
Eco 75	75	220 x 220	1,000 x 1,000	210	210	368 – 382	–	1	8
Eco 250	250	360 x 360	3,000 x 2,000	800 – 2,400	400 – 1,500	450 – 825	400 – 1,100	1, 2, 4, 6, 8	33 – 59
Eco 500	500	480 x 480	4,000 x 2,000	800 – 3,200	400 – 1,500	605 – 1,130	500 – 1,200	1, 2, 4, 6, 8	93 – 141
Eco 750	750	900 x 620	4,000 x 2,000	800 – 3,200	400 – 1,500	735 – 1,130	500 – 1,200	4, 6, 8	132 – 141
Eco 1000	1,000	630 x 630	4,000 x 2,000	800 – 4,000	1,150	730 – 1,210	500 – 1,200	1, 4, 8	138 – 309

\*The recommended minimum workpiece weight is 10% of the lift capacity.



### Vacuum Components

Innovative vacuum components from Schmalz offer many users in various sectors of industry reliable support in the solution of automation and handling tasks. The wide range of components extends from suction pads and vacuum generators to mounting elements and system monitoring devices.

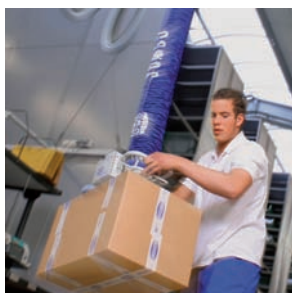
Tel. +49 (0)7443 2403 102  
Fax +49 (0)7443 2403 597



### Vacuum Gripping Systems

Complex vacuum gripping systems from Schmalz permit decisive productivity improvements to be achieved. The range extends from layer and large-area gripping systems to complete vacuum spiders, delivered ready for connection, for use in all areas of automation.

Tel. +49 (0)7443 2403 107  
Fax +49 (0)7443 2403 596



### Vacuum Handling Systems

Ergonomical vacuum lifting devices Jumbo and VacuMaster for effortless, damage-free handling of workpieces. Crane systems to supplement these to form complete system solutions which are precisely matched to the planned application. Workshop equipment as practical aids in trade and industry.

Tel. +49 (0)7443 2403 108  
Fax +49 (0)7443 2403 399



### Vacuum Clamping Systems

Future-oriented vacuum clamping technology from Schmalz is the intelligent response to the continually increasing demands for more productivity and economic operation of CNC machine tools.

Tel. +49 (0)7443 2403 109  
Fax +49 (0)7443 2403 595

| Subject to technical changes without notice |

