

Fork Lift Grab STAZ

- ▶ Specially designed for heavy duty work with fork lift trucks. Light-weight, yet with a high carrying capacity due to the use of high-tensile steel for load-bearing parts.
 - ▶ Fully hydraulic parallel opening range.
 - ▶ Low-maintenance steel-polyamide sliding guides.
- Standard Specifications:**
- ▶ Manually adjustable pressure relief valve.

- ▶ Oil Pressure Gauge
- ▶ Can fit all the usual packs of building materials due to a large opening range and to the exchangeable grippers which come in various lengths and designs.

(Supplied without connecting hoses to the fork-lift truck).

Polyamide sliding guides come with a 5 year guarantee.

All Forklift Grabs can also be used as cubing grabs in fully automatic cubers for blocks and pavers. Besides the hydraulically operated grabs also purely electrically operated grabs can be offered on request.

Type	Opening Width W mm (in)	Height E mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
STAZ-S-700 unigrip I	550 - 1,230 (21 ³ / ₄ - 48")	700 (27 ¹ / ₂ ")	3,000 (6,600)	340 (750)	5700.0093
STAZ-S-850 unigrip I		850 (33 ¹ / ₂ ")	2,600 (5,700)	360 (790)	5700.0094
STAZ-S-1000 unigrip I		1,000 (39")	2,300 (5,100)	380 (840)	5700.0088
STAZ-S-1200 unigrip I		1,200 (47")	2,100 (4,650)	450 (990)	5700.0102
STAZ-SS-850 unigrip I	550 - 1,230 (21 ³ / ₄ - 48")	850 (33 ¹ / ₂ ")	4,000 (8,800)	440 (970)	5700.0095
STAZ-SS-1000 unigrip I		1,000 (39")	3,500 (7,700)	460 (1,010)	5700.0096
STAZ-SS-1200 unigrip I		1,200 (47")	3,000 (6,600)	490 (1,080)	5700.0097
STAZ-S-700 unigrip II	370 - 1,370 (14 ¹ / ₂ - 54")	700 (27 ¹ / ₂ ")	3,000 (6,600)	400 (880)	5700.0092
STAZ-S-850 unigrip II		850 (33 ¹ / ₂ ")	2,600 (5,700)	420 (930)	5700.0084
STAZ-S-1000 unigrip II		1,000 (39")	2,300 (5,100)	440 (970)	5700.0085
STAZ-S-1200 unigrip II		1,200 (47")	2,100 (4,650)	480 (1,060)	5700.0103
STAZ-SS-850 unigrip II	370 - 1,370 (14 ¹ / ₂ - 54")	850 (33 ¹ / ₂ ")	4,000 (8,800)	500 (1,100)	5700.0098
STAZ-SS-1000 unigrip II		1,000 (39")	3,500 (7,700)	520 (1,150)	5700.0099
STAZ-SS-1200 unigrip II		1,200 (47")	3,000 (6,600)	550 (1,210)	5700.0100

Larger or modified opening widths and heights are available on request.

Applications:

STAZ-S Series: Normal use for gripping stacks consisting of large elements or vertically steel strapped packs of stones, e.g. packs of pavers.

STAZ-SS Series: For gripping heavier loads, or packs produced on multi-layer production machines. In particular used in conjunction with steel finger grippers. Can also be used for gripping packs of pavers which are not vertically steel strapped.

STAZ-SSS Series: For heavy duty work, mostly used in conjunction with automatic cubing stations, also in multiple shift work. **Available on request.**

STAZ-Super S Series: Most heaviest design, similar as STAZ-SSS, used when additionally large inside height is required. **Available on request.**

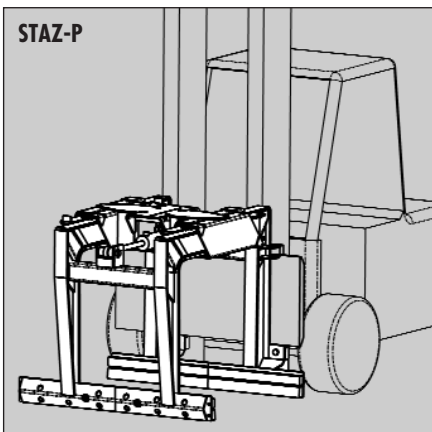
Recommended Accessories: (For descriptions see pages 7.5 - 7.9)

Type	
Gripping Elements:	
Rubber Grippers	see page 7.5
Steel Finger Grippers, heavy duty design	see page 7.6
Double Steel Finger Grippers, heavy duty design two rows, mounted on top by each other	see page 7.6
Connections to the fork lift truck:	
Hydraulic Rotators	see page 7.9
Hydraulic swing dampers	see page 7.9
Fork Sleeves for Fork Peaks	see page 7.7
Crane Boom	see page 7.8
Telescopic V-equipment for crane boom	see page 7.8
Hydraulic connection hoses	see page 7.9

Special accessories available on request.

All forklift grabs can easily be equipped with an electro-hydraulic power pack on top of the grab to be used in conjunction with a bridge crane or similar. s. Pages 7.10

STAZ-P



Fork Lift Grab STAZ-P/STAZ-KA

- ▶ Specially designed for the heavy duty work with forklift truck, directly fixed to the carriage plate of the forklift.
 - ▶ **Type STAZ-P** grips the pack by pressing it towards the gripper close to the forklift. This achieves smallest possible load center of the pack.
 - ▶ **Type STAZ-KA** moves both grippers synchronized towards the pack. Compact design due to integrated crane boom.
 - ▶ Light-weight, yet with a high carrying capacity due to the use of high-tensile steel for load bearing parts.
 - ▶ Fully hydraulic parallel opening range.
 - ▶ Low maintenance steel polyamide sliding guides.
- Standard specifications:**
- ▶ Manually adjustable pressure relieve valve.
 - ▶ Oil Pressure Gauge
 - ▶ Can fit all the usual packs of building materials due to a large opening range and to the exchangeable grippers which come in various lengths and designs.
 - ▶ We recommend the use of a side-shift built into the forklift.

Polyamide sliding guides come with a 5 year guarantee!

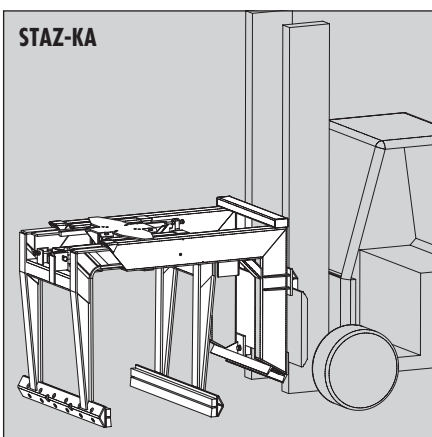
Type	Opening Width Main Gripper W1 mm (in)	Height E mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
STAZ-SS/S-1000-unigrip I-P	580 – 1,260 (22 ³ / ₄ – 50")	1,000 (39")	2,300 (5,100)	440 (970)	5700.0087
STAZ-S-1000-unigrip II-KA	370 – 1,370 (14 ¹ / ₂ – 54")	1,000 (39")	2,000 (4,400)	590 (1,300)	5700.0107

Larger or modified opening widths and heights are available on request.

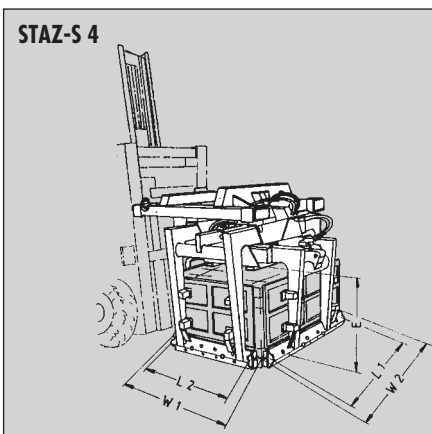
Recommended Accessories:

Type	(For descriptions see pages 7.5, 7.6, and 7.9)
Gripping Elements:	
Rubber Grippers	see page 7.5
Steel Finger Grippers	see page 7.6
Hydraulic connection hoses	see page 7.9

STAZ-KA



STAZ-S 4



Polyamide sliding guides come with a 5 year guarantee!

Fork Lift Grab STAZ-S 4

- ▶ The same characteristics as the STAZ but equipped with a **four-sided clamping action**.
 - ▶ Specially designed for the safe gripping of un-straped and un-compressed stacks of multi-layer production.
- Because the main and the end gripping is hydraulically controlled separately, and by using pressure plates (Accessory!), an exact compression of the stacks and the elimination

of any gaps are achieved.

To set the length of the grippers exactly, we need you to send us drawings of the mold layouts together with your order.

Two separate hydraulic circuits are necessary to be supplied by the fork lift truck. (Supplied without connecting hoses to the fork lift truck).

Type	Opening Width Main Gripper W1 mm (in)	End Gripper W2 mm (in)	Height E mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
STAZ-S 4-850	550 – 1,230 (21 ³ / ₄ – 48")	900 – 1,400 (35 ¹ / ₂ – 55")	850 (33 ¹ / ₂ ")	2,600 (5,700)	740 (1,630)	5700.0106
STAZ-S 4-1000	550 – 1,230 (21 ³ / ₄ – 48")	900 – 1,400 (35 ¹ / ₂ – 55")	1,000 (39")	2,300 (5,100)	780 (1,720)	5700.0109

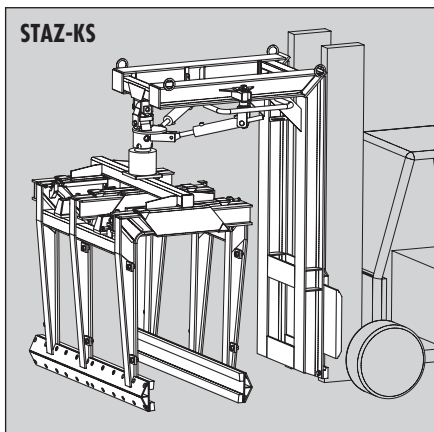
Larger or modified opening widths and heights are available on request.

Recommended Accessories:

Type	(For descriptions see pages 7.5, 7.6, 7.7 and 7.9)
Gripping Elements:	
Rubber Grippers	see page 7.5
Pressure plates size adapted to the cube size	see page 7.6
Connections to the fork lift truck:	
Fork Sleeves ET III	see page 7.7
Fork Sleeves ET III 90°	see page 7.7
Hydraulic connection hoses	see page 7.9

Special accessories available on request.

All Forklift Grabs can also be used as cubing grabs in fully automatic cubers for blocks and pavers. Besides the hydraulically operated grabs also purely electrically operated grabs can be offered on request.



Fork Lift Grab STAZ-KS

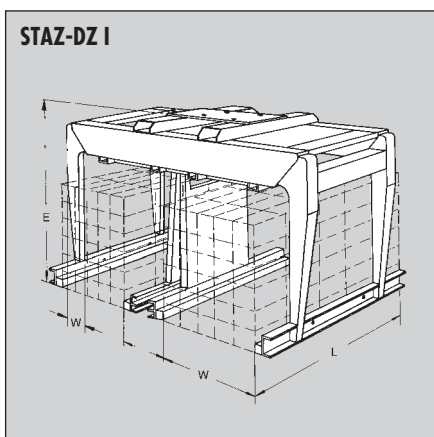
Specially designed for operation in silicate block factories.

With crane boom, hydraulic continuous rotator, hydraulic swing damper and rubber grippers for handling silicate blocks gently.

► Carrying capacity up to 6.000 kg!

Different models to cope with specific needs available on request.

Polyamide sliding guides come with a 5 year guarantee.



Fork Lift Grab STAZ-DZ I

► The same characteristics as the STAZ but, due to an additional hydraulically spreadable centre divider it can be used to lift 2 stacks at the same time if they are standing across on the conveyor belt.

The extremely slim build of the central divider (200 mm closed, 300 mm spreaded) means a lot of space can be saved when stacking goods.

► Only one hydraulic circuit is needed to be supplied by the fork lift truck to operate both, clamping and center divider due to a hydraulic sequence circuit.

(Supplied without connecting hoses to the fork lift-truck).

Polyamide sliding guides come with a 5 year guarantee.

All Forklift Grabs can also be used as cubing grabs in fully automatic cubers for blocks and pavers. Besides the hydraulically operated grabs also purely electrically operated grabs can be offered on request.

Type	Opening Width W mm (in)	Height E mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
STAZ-DZ-S-850	550 – 940 (21 ³ / ₄ – 37")	850 (33 ¹ / ₂ ")	3,200 (7,100)	570 (1,260)	5700.0050
STAZ-DZ-S-1000	550 – 940 (21 ³ / ₄ – 37")	1,000 (39")	3,200 (7,100)	620 (1,370)	5700.0052

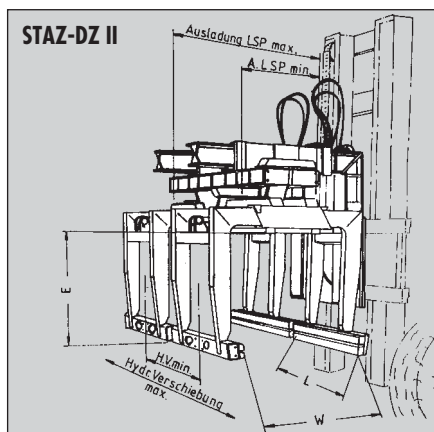
Larger or modified opening widths and heights are available on request.

Recommended Accessories:

(For descriptions see pages 7.5 – 7.9)

Type	
Gripping Elements:	
Rubber Grippers	see page 7.5
Connections to the Fork Lift Truck:	
Hydraulic Rotators	see page 7.9
Hydraulic Swing Dampers	see page 7.9
Fork Sleeves for Fork Peaks	see page 7.7
Crane Boom KA-II SS	see page 7.8
Hydraulic connection hoses to the lifting unit	see page 7.9

Special accessories available on request.



Fork Lift Grab STAZ-DZ II

Consisting of two single clamps (see STAZ for technical data). Connected by a spreader bar. Suitable for lifting 2 stacks at the same time if they are stacked longitudinally on the conveyor belt. The same unit can be equipped with a hydraulically operated distance adjuster bar which can remove any gaps between the stacks, thus saving space in the storage area.

► Only one hydraulic circuit is needed to be supplied by means of the fork lift truck, if both clamps are operated together. To operate the clamps individually, see page 7.9 ELMV-DZ. (Supplied without connecting hoses to the fork lift truck).

Polyamide sliding guides come with a 5 year guarantee.

All Forklift Grabs can also be used as cubing grabs in fully automatic cubers for blocks and pavers. Besides the hydraulically operated grabs also purely electrically operated grabs can be offered on request.

Recommended Accessories:

(See pages 7.5 – 7.9 for descriptions)

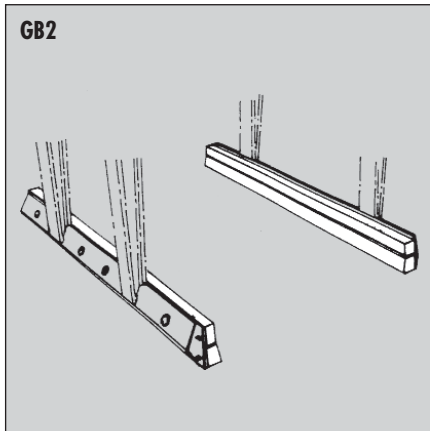
Type	
Gripping Elements:	
Rubber Grippers	see page 7.5
Steel Finger Grippers, heavy duty design	see page 7.6
Double steel finger grippers, heavy duty design 2-rows mounted on top of each other	see page 7.6
Connections for both clamps:	
Spreader bar fixed	see page 7.9
Spreader bar with hydraulic distance adjustment	see page 7.9
Connections to the fork lift truck:	
Fork Sleeves for Fork Peaks	see page 7.8
Crane Boom KA-II SS	see page 7.8
Crane Boom with hydraulic extending suspension with distance adjuster bar KA-II SS VA	see page 7.8
Hydraulic connection hoses to the fork lift	see page 7.9
Electrical Connection-Kit between STAZ-DZ II and forklift	see page 7.9

See pages 7.5 – 7.9 for further accessories.

Special accessories available on request.

The drawing above shows a standard unit consisting of the following components:

- 2 x STAZ-S-1000 maxi
- 2 x rubber grippers, 1,250 mm long
- 1 x spreader bar with hydraulic distance adjustment
- 1 x crane boom with hydraulic extending suspension KA-II-SS-VA
- 2 x electro-magnetic change-over-valve ELMV-DZ
- 1 x electro-magnetic change-over valve ELMV
- 2 pairs of hydraulic connection hoses to the fork lift



Accessories for Fork Lift Grabs

Grippers

To make the fork lift grabs as versatile as possible there are grippers available for every type of use.

The following grippers are available for standard usage:

Rubber Grippers GB2

- ▶ Light-weight, suitable for all models and available in various lengths.
- ▶ The gripping element consists of highly durable exchangeable rubber-metal bars screwed to a substructure.

- ▶ Thick rubber linings ensure a careful handling of delicate concrete products.
- ▶ 2 rows of rubber metal bars and a conical lower rubber surface strengthen the gripping pressure on the lowest row of blocks.

Applications:

- ▶ Stacks of large concrete elements.
- ▶ Stacks of paving blocks, each row vertically steel-strapped.
- ▶ Stacks of paving blocks which are either not, or only partly, vertically steel-strapped and which are produced on a single layer machine with gripping width up to 700 mm and a minimum thickness of 60 mm.
- ▶ Limited use for stacks of paving blocks which are either not, or only partly, vertically steel-strapped and which are produced on a multi-layer machine, with a gripping width above 700 mm and a minimum thickness of 80 mm.

Type	Length mm (in)	Dead Weight per Pair kg (lbs)	Order-Number
GB2-0720	720 (28 ¹ / ₄ "	25 (55)	4000.0005
GB2-0850	850 (33 ¹ / ₂ "	30 (65)	4000.0248
GB2-1000	1,000 (39")	33 (75)	4000.0022
GB2-1100	1,100 (43")	37 (80)	4000.0041
GB2-1200	1,200 (47")	40 (90)	4000.0053
GB2-1250	1,250 (49")	42 (95)	4000.0056
GB2-1300	1,300 (51")	44 (95)	4000.0062

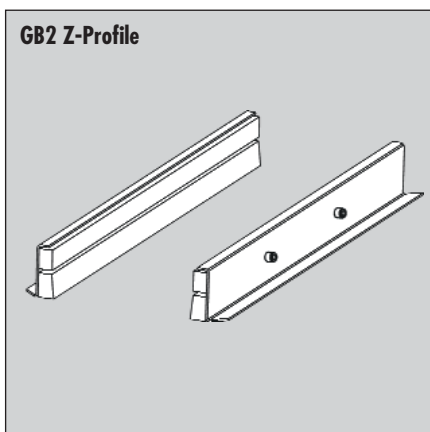
Rubber grippers with quick change system

▶ Design and utilization as described above, but in this case the rubber elements are secured to a Z-shape steel carrier.

- ▶ The complete gripper is fixed to the body of the grab by means of 2 pins.
- ▶ When different length of grippers are needed, they can be exchanged quickly by this quick change system.

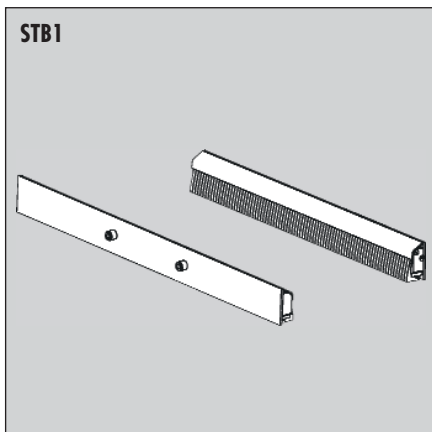
Type	Length mm (in)	Dead Weight per Pair kg (lbs)	Order-Number
GB2-0720 Z	720 (28 ¹ / ₄ "	31 (70)	4000.0417
GB2-0850 Z	850 (33 ¹ / ₂ "	36 (80)	4000.0414
GB2-1000 Z	1,000 (39")	43 (95)	4000.0270
GB2-1100 Z	1,100 (43")	48 (105)	4000.0271
GB2-1200 Z	1,200 (47")	52 (115)	4000.0272
GB2-1250 Z	1,250 (49")	54 (120)	4000.0273
GB2-1300 Z	1,300 (51")	56 (125)	4000.0274

Further gripper lengths available on request.



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STB1



Accessories for Fork Lift Grabs

Steel Finger Grippers STB1

A heavy-duty design, especially developed for fork lift grabs with extra-deep gripping for transporting not vertically steel strapped pavers. Quickly exchangeable against rubber gripper bars GB2Z with 2 bolts, secured by screws.

Single spring-steel fingers are suitable for almost all block shapes which means the safe handling of most products.

► Please pay attention to the fact that the opening width (W) of fork lift attachment grab STAZ is reduced for 60 mm towards the rubber gripper bars.

Applications:

► Stacks of paving blocks which are either not, or only partly, vertically steel-strapped and which are produced on a single layer machine with a gripping width up to 850 mm and a minimum block thickness of 60 mm.

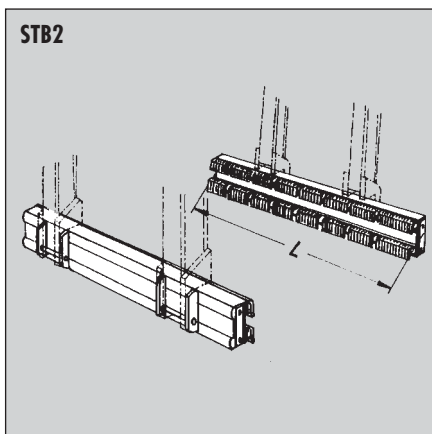
► Limited use for stacks which are either not or only partly vertically steel strapped and which are produced on a multi-layer machine with a gripping width up to 850 mm and a minimum block thickness of 80 mm.

Type	Length L mm (in)	Dead Weight per Pair kg (lbs)	Oder-Number
STB1-1000 S2	1,000 (39")	65 (145)	4000.0532
STB1-1200 S2	1,200 (47")	75 (165)	4000.0541
STB1-1250 S2	1,250 (49")	80 (175)	4000.0521
STB1-1300 S2	1,300 (51")	85 (185)	4000.0533

Further gripper lengths are available on request.

Double Steel Finger Grippers STB2

STB2



These have the same characteristics and design as the steel finger grippers, but with 2 grippers on top of each other mounted on a limited spreader bar.

The grippers are arranged so that with 60 mm high pavers the lower gripper grips the lowest row of blocks and the upper gripper grips the 3rd row of blocks from the bottom.

Applications:

► Stacks of paving blocks which are either not, or only partly, vertically steel-strapped and which are produced on a single layer machine,

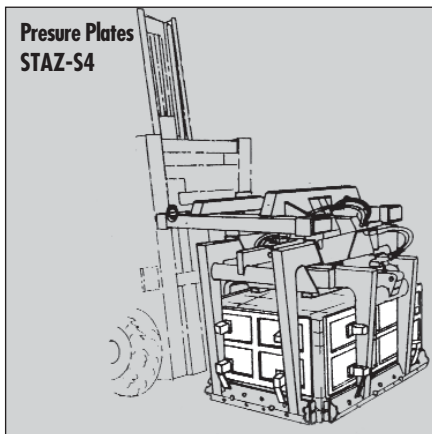
with a gripping width up to 1,050 mm (850) and a minimum block thickness of 80 mm (60).

Type	Length L mm (in)	Dead Weight per Pair kg (lbs)	Order-Number
STB2-1200 S	1,200 (47")	170 (375)	4000.0150
STB2-1250 S	1,250 (49")	180 (400)	4000.0151
STB2-1300 S	1,300 (51")	190 (420)	4000.0152

Further gripper lengths are available on request.

Further models of gripping elements, e. g. with colourless rubber or specially adjusted shaped grippers are available on request.

Pressure Plates
STAZ-S4

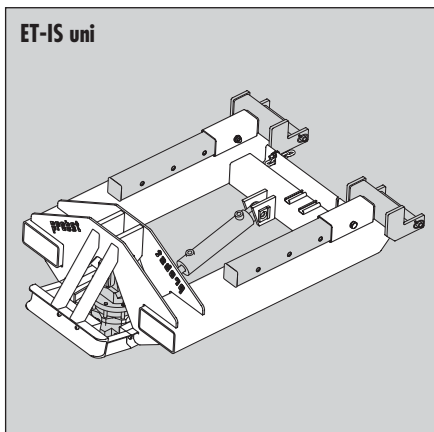


Pressure Plates

Used for compressing stacks of paving blocks (to remove any gaps between the blocks) as they are actually gripping them. Usually installed on the STAZ-S 4.

Solid surface, measurements adjusted to fit the gripper length and the height of the clamp. Spring-loaded, mounted on 4 suspension points.

	Order-Number
Pressure Plates (Delivery in Pairs)	4705.0059



Accessories for Fork Lift Grabs

Fork Sleeves for Forks ET

For fixing onto the fork peaks, with locking device on the forks.

► **Advantage:** short change-over time when adding other attachments to the fork lift.

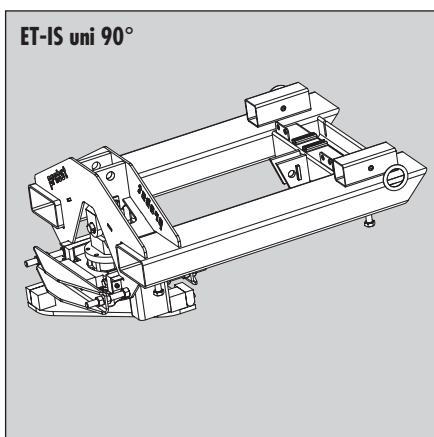
► **Attention:** loss of lifting height (= Clamp inside height E + approx. 495 mm, according to the model).

Various types of fork sleeves are available, depending on the jobs in hand or the attachment device.

Fork Sleeves ET-IS uni with cardanic suspension of the clamp

Designed for the installation of a hydraulic rotator damper (Only suitable for STAZ and STAZ-DZ I). With security chain to avoid slipping.

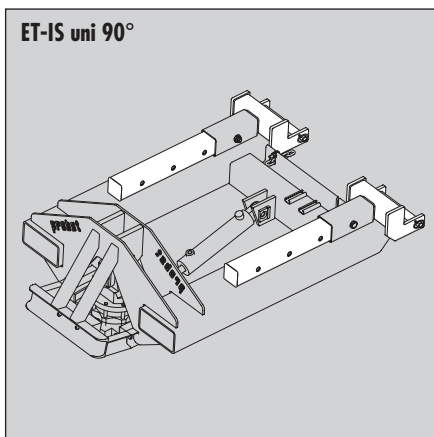
Type	Carrying Capacity kg (lbs)	Load Extension mm (in)	Dead Weight kg (lbs)	Order-Number
ET-IS uni	4,000 (8,800)	variable	140 (310)	4711.0030



Fork Sleeves ET-IS uni 90°

Rotating area 90° by hydraulic rotator. (Also available with rotating area +/-45°)

Type	Carrying Capacity kg (lbs)	Load Extension mm (in)	Dead Weight kg (lbs)	Order-Number
ET-IS uni 90°	3,000 (6,600)	variable	150 (330)	4711.0031



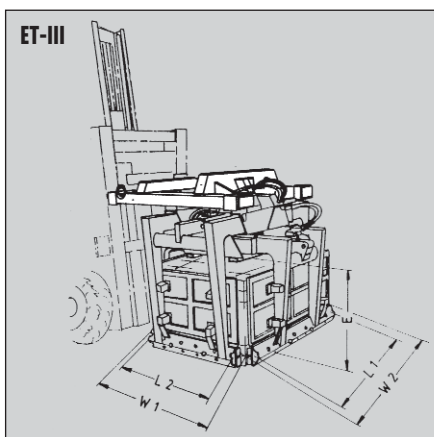
Fork Sleeves Fixation ETA for ET-IS uni

To avoid that the ET-IS uni slips off the forks. Different reach achievable by pin-adjustment.

Type	Load Extension mm (in)	Dead Weight kg (lbs)	Order-Number
Fork sleeve fixation ETA	1,000 – 1,450 (39 – 57")	20 (45)	4711.0036

Fork Sleeves ET-II for double clamps, integrated into the spreader bar

Type	Carrying Capacity kg (lbs)	Load Extension mm (in)	Dead Weight kg (lbs)	Order-Number
ET-II	5,500 (12,100)	variable	140 (310)	4710.0022

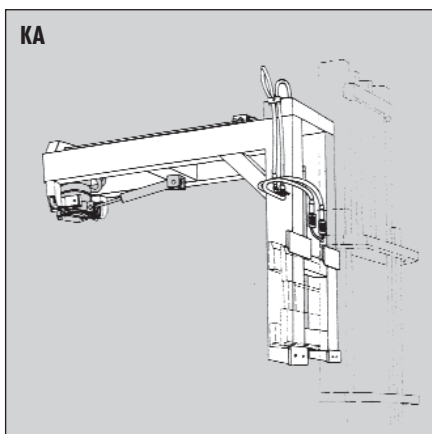


Fork Sleeves ET III for single clamps, mainly the STAZ-S 4, screwed tightly to the clamp

Can also be installed in a 90° turn position, due to the symmetrical flange plate.

Type	Carrying Capacity kg (lbs)	Load Extension mm (in)	Dead Weight kg (lbs)	Order-Number
ET-III	3,000 (6,600)	variable	130 (285)	4711.0016

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Accessories for Fork Lift Grabs

Crane Boom KA

With a fastening for fixing directly onto the lifting plate.

- ▶ 2-arm modul for good visibility for the driver.
- ▶ Hydraulic connections installed up to the end of the boom.
- ▶ Including cardanic suspension of the clamp.

▶ **Advantage:** Full use of the lifting height of the fork lift.

▶ **Attention:** Change-over time to use with forks approx. 5 minutes. Different models are available depending on the use.

Crane Boom KA-I for single clamps

Designed for the installation of a hydraulic rotator and also for the installation of a hydraulic swing damper (only suitable for STAZ and STAZ-DZ I).

Type	Carrying Capacity kg (lbs)	Load Extension mm (in)	Dead Weight kg (lbs)	Order-Number
KA-I S	4,000 (8,800)	max. 1,500 (59")	390 (860)	4712.0033
KA-I SS	4,000 (8,800)	max. 1,800 (71")	490 (1,080)	4712.0034

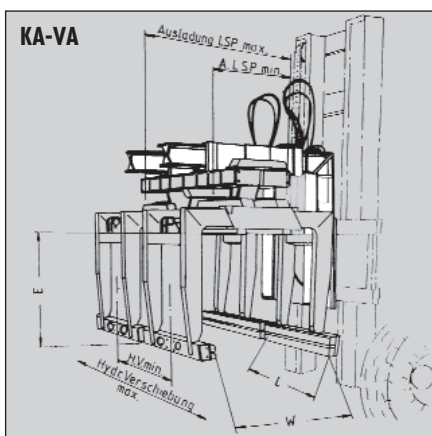
Crane Boom KA-II for double clamps

Type	Carrying Capacity kg (lbs)	Load Extension mm (in)	Dead Weight kg (lbs)	Order-Number
KA-II SS	5,500 (12,100)	approx. 1,100 (43")	550 (1,210)	4710.0038

Crane Boom KA with Distance Adjustment VA

A hydraulically extendable suspension point to extend the clamp forward of the fork lift truck.

▶ **Advantage:** Trucks can be loaded from one side alone. Especially useful in confined spaces.



Crane Boom KA-I for single grabs with distance adjustment

Type	Carrying Capacity kg (lbs)	Load Extension mm (in)	Dead Weight kg (lbs)	Order-Number
KA-IS-VA	4,000 (8,800)	1,120 - 1,800 (44 - 71")	480 (1,060)	4712.0035

Crane Boom KA-II for double grabs with distance adjustment

Type	Carrying Capacity kg (lbs)	Load Extension mm (in)	Dead Weight kg (lbs)	Order-Number
KA-II SS-VA	5,500 (12,100)	1,120 - 1,800 (44 - 71")	690 (1,520)	4712.0036

When using the V-Equipment, take note of the following points:

- ▶ The stability of the fork lift truck can be guaranteed only when the clamp is in its fully retracted position.
- ▶ The clamp must only be extended when the fork lift is stationary, as long as the clamp is of

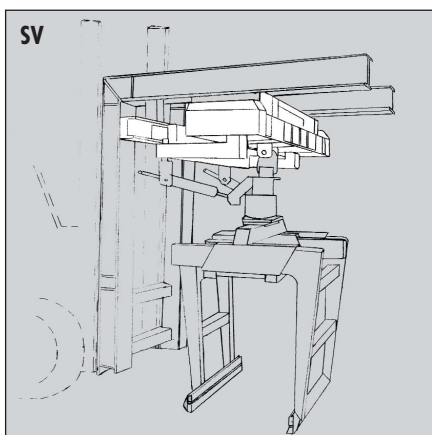
a maximum of 10 cm above the loading surface of the truck.

▶ The customer must fit an optical signal. (Flashing lights or such like) to the fork lift, to warn the driver when the load is not in its fully retracted position. (For this purpose an electric contact switch is supplied with the device).

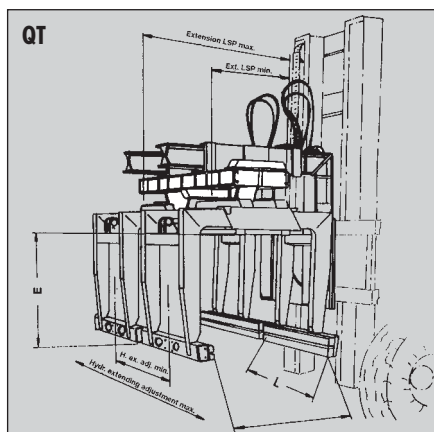
Site Shift for Crane Boom SV

Additional equipment to hydraulically move the suspending point of the clamp sideways.

▶ **Advantage:** Enables the driver of the fork lift to position the clamps exactly.



Type	Carrying Capacity kg (lbs)	Site Shift mm (in)	Dead Weight kg (lbs)	Order-Number
SV	5,500 (12,100)	± 160 (6 1/4")	150 (330)	4710.0063



Accessories for Fork Lift Grabs

Spreader Bar QT

For double clamps, for fitting both single clamps. Fixed model with set distance between the two clamps (QT model).

The spreader bar is firmly bolted to the clamps, yet is flexible beared in the driving direction and is fixed with individual swing dampers via

rubber buffers.

► Also available with hydraulic distance adjustment of the two clamps so that the distance between the packs is reduced and space is secured in the storage area. (QT-H and QT-HL models).

Type	Carrying Capacity kg (lbs)	Range of Displacement mm (in)	Dead Weight kg (lbs)	Order-Number
QT	5,500 (12,100)	0 (0)	140 (310)	4710.0037
QT-H	5,500 (12,100)	0 – 400 (0 – 15 ³ / ₄ "")	200 (440)	4713.0019
QT-HL	5,500 (12,100)	0 – 640 (0 – 25 ¹ / ₄ "")	220 (485)	4713.0016

Hydraulic Rotators

Fitted between the clamp and the fork sleeves/crane boom, enabling stacks to be

lifted and deposited, according to requirements.

Type	Carrying Capacity kg (lbs)	Rotation	Dead Weight kg (lbs)	Order-Number
GV4-S	4,000 (8,800)	endless	34 (75)	4715.0049
GV12-S	7,500 (16,500)	endless	56 (125)	4715.0055

Hydraulic Swing Damper

Fitted to control the swinging movements of the clamp when the fork lift is in motion.

Damper is longitudinally to the direction of travel by means of a hydraulic damping cylinder and

diagonally to the direction of travel by means of rubber buffers. PD-V heavy-duty design with 2 damper cylinders arranged in V-stage.

Type	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
PD-S	4,000 (8,800)	30 (65)	4714.0002
PD-V	5,000 (11,000)	70 (155)	4710.0042

Hydraulic Accessories

1 set = 2 hydraulic hoses including quick couplings between the fork lift and the fork sleeves or

crane boom, length each approx. 1,200 mm.

Type	Order-Number
Hydraulic Hoses HD	4710.0047

Fitted to the clamp, in case there is only one hydraulic circuit on the side of the fork lift for "clamping" and "turning". Supplied with the

required electrical relays and push button, but not the electric connections to the fork lift truck.

Type	Voltage (V)	Order-Number
Electromagnetic Change Over Valve ELMV	12 V	4710.0083
Electromagnetic Change Over Valve ELMV	24 V	4710.0107

Fitted to each of both clamps of the fork lift double clamp attachment STAZ-DZ II, for the separate control of the two single clamps. This means that

the double clamp can be used to transport only one stack, as and when required. Supplied without electrical connections to the fork lift truck.

Type	Voltage (V)	Order-Number
Electromagnetic Change Over Valve ELMV-DZ	12 V	4710.0084
Electromagnetic Change Over Valve ELMV-DZ	24 V	4710.0108

Electrical connection-kit for double grabs, consisting of:

► Complete electric wiring of the attachment, installation of the components into the forklift has to be carried out by the customer.

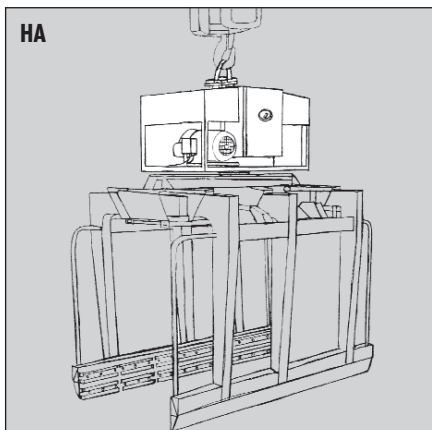
► Spiral cable between forklift and attachment, control box and control elements.

► Turning light for warning purpose for V-attachment on crane boom KA.

Type	Order-Number
Electrical Connection-Kit between STAZ-DZ II and forklift	4710.0085

All forklift grabs can easily be equipped with an electro-hydraulic power pack on top of the grab to be used in conjunction with a bridge crane or similar. s. Pages 7.10

HA



Accessories to clamps for overhead cranes

Electrohydraulic power pack HA

To produce the hydraulic energy to control clamp movements such as gripping, turning, swivelling.

► Electric cables for controlling the electric motor and the solenoid valves put together in a

control box, but without electrical installation for creating the movements.

► Including pressure switch to control the hydraulic clamping pressure.

Type	Number of functions	Power consumption	Dead Weight kg (lbs)	Order-Number
HA I	1	3-4 kW	190 (420)	4740.0014
HA II	2	3-4 kW	200 (440)	4740.0015
HA III	3	3-4 kW	210 (465)	4740.0016

Additional Attachment with Dual-Stage Hydraulic Pump

1. Stage: Low pressure, but high volume for quick movement of the grab without exerting clamping pressure.

2. Stage: High pressure, low oil flow for low movement, but exerting high clamping pressure.

The switch-over from stage 1 to stage 2 operates automatically.

Type	Order-Number
Dual-Stage Pump	4740.0017

Electrical Installation EI

► Electrically installed ready to be plugged inside the control cabinet.

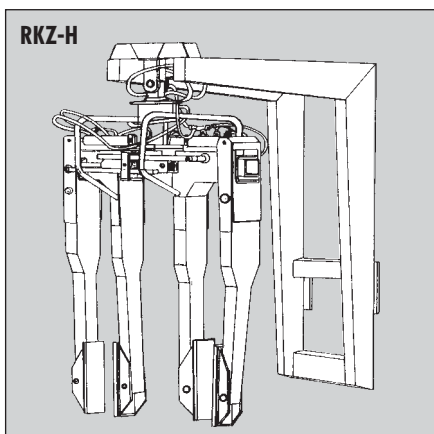
► Including automatical activation of the hydraulic pump when there is a loss of pressure when products are gripped.

► Including emergency stop-switch.

► Including motor protection-switch.

Type	Number of functions	Operating voltage	Control voltage	Order-Number
EI-I	1	400 V/50 Hz	24 V DC	4740.0010
EI-II	2	400 V/50 Hz	24 V DC	4740.0011
EI-III	3	400 V/50 Hz	24 V DC	4740.0012

Other voltages on request.



Ring- and Cone Clamp RKZ-H

A hydraulic grab attachment for transporting up to 3 manhole rings with a height of 500 mm.

- ▶ Can also be used for single manhole cones due to its swinging grippers.
- ▶ Ideal for clearing the manufacturing area and for loading trucks.
- ▶ By clamping onto the walls of the products no radial pressure is exerted on the rings and so fairly green products can be removed from the manufacturing surface at a much earlier stage.

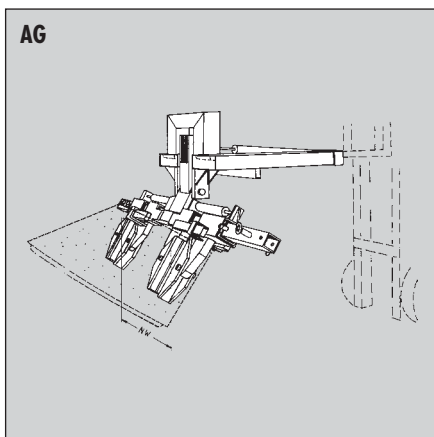
▶ An adjustment to the widths is done hydraulically prior to the clamping action. This hydraulic change-over means that to operate the clamping and diameter setting action, only one hydraulic circuit is needed on the side of the fork lift truck.

(Supplied without connecting hoses to the fork lift truck).

The RKZ-HS is a heavy-duty model for up to 4 manhole rings with a height of 500 mm.

Type	Gripping Range for Rings and Cones ID mm (in)	Carrying Capacity kg (lbs)	Height E mm (in)	Dead Weight kg (lbs)	Order-Number
RKZ-H	600 – 1,500 (23½ – 59")	1,750 (3,850)	1,500 (59")	680 (1,500)	5720.0011
RKZ-HS	600 – 1,500 (23½ – 59")	2,300 (5,100)	2,000 (79")	790 (1,740)	5720.0012

If possible the Ring- and Cone Clamp RKZ-H/HS should be fitted onto the fork lift truck with a crane boom (see pages 7.8 and 7.9) and a hydraulic rotator.



Setting Up Device for Manhole Rings AG

Makes the production of manhole rings more efficient and user-friendly, as the rings and cones are gripped and lifted and set up hydraulically.

- ▶ As no radial pressure is exerted on the rings, green products can be safely handled.
- ▶ The setting up device can be used to

transport and lift rings and cones with an internal width of up to 1,200 mm.

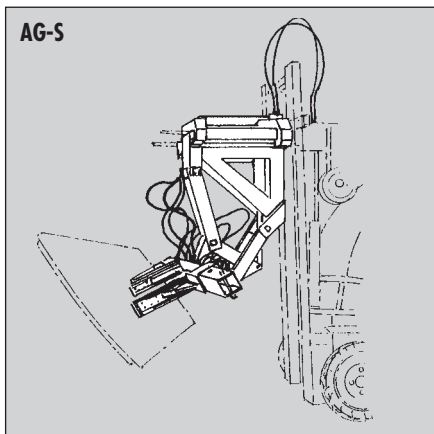
▶ Two separate hydraulic circuits are needed on the side of the fork lift truck.

(Supplied without connecting hoses to the fork-lift-truck).

Type	Gripping Range ID mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
AG	625 (24½") up to 1,200 (47")	1,500 (3,300)	370 (820)	5720.0042
AG-S	625 (24½") up to 1,200 (47")	2,000 (4,400)	680 (1,500)	5720.0043

Special models available on request. See page 7.9 for hydraulic connecting hoses. If the fork lift truck only has one circuit, see electromagnetic change-over valve on p. 7.9.

Additional cost for bolt-on extension for lifting rings up to 1,500 mm (59") inside diameter.	5720.0044
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Additional Equipment UAV

Fitted onto the Setting Up Device AG or the Turning Device UG to allow the steel pallets to be accurately removed when clearing the manufacturing area – e.g. to be placed into the magazine.

- ▶ The swingable device fits the outer contour of the manhole rings, cones and pins and pushes

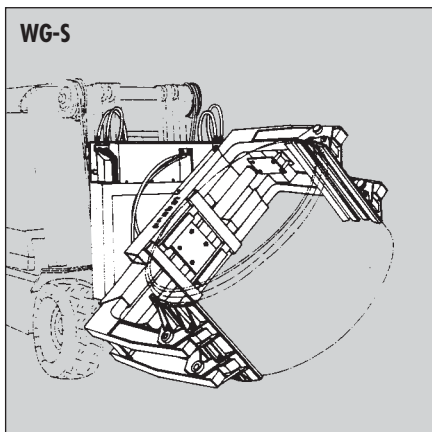
the steel pallets on the outside protruding edge.

▶ The pushing process is steered hydraulically, the height adjustment is done manually by bolts.

UAV	4720.0001
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Technical data contained in this catalogue can be modified without prior notice in the interest of progress.

WG-S



Turning Device for Concrete Basers WG-S

Enables concrete products such as manhole-basers to be turned around 180° after production (turning range 360° endless).

Because the products are turned at the longitudinal axle of the fork lift, there is very little extension so that the centre of gravity of the load and the device are very close to the fork lift.

Both, the gripping and turning manoeuvres are fully hydraulic.

Standard Specifications:

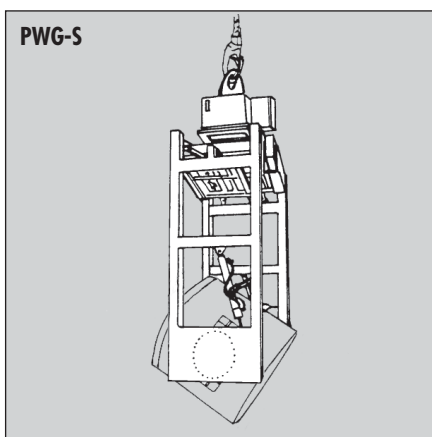
► Grippers lined with rubber metal bars and double-hinged so that they fit the various diameters well.

(Supplied without connecting hoses to the fork lift truck).

Larger or modified opening widths are available on request.

Type	Suitable for Outer Diameter mm (in)	Minimum Height mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
WG-S	1,200 – 1,800 (47 – 71")	680 (26 ³ / ₄ "	4,200 (9,300)	850 (1,870)	5720.0112

PWG-S



Gantry Crane – Rotating Clamp for Manhole Rings and Basers PWG-S

Hydraulic clamp, suitable to lift and rotate large concrete manhole rings and basers by 180°.

The grippers are specially adapted for manhole

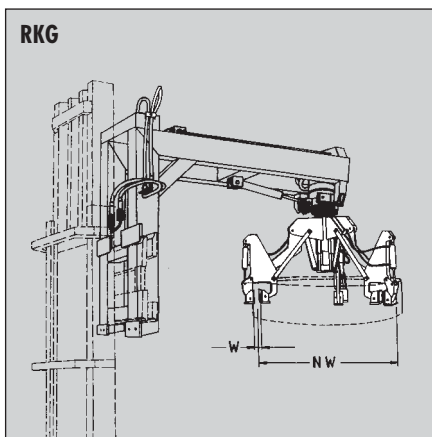
rings and basers, 2 opposite surfaces without an inlet or outlet are needed.

The grippers are specially adapted for manhole

Type	Opening Width mm	Turning Range (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
PWG-S 4.5	1,200 - 1,800 (47 - 71")	180°	4,500 (9,900)	1,800 (3,950)	5740.0016
PWG-S 7	1,200 - 1,800 (47 - 71")	180°	7,000 (15,400)	2,800 (6,200)	5740.0017

Recommended Accessory: Electrical Installation EI-II, see typelist page 7.10

RKG



Ring- and Cone Clamp RKG

Hydraulically operated universal grab attachment for manhole rings and cones.

► Using only one hydraulic circuit the clamp firstly adjusts to the inner diameter and then clamps the ring wall by 3 hydraulically operated rubber-lined gripping claws.

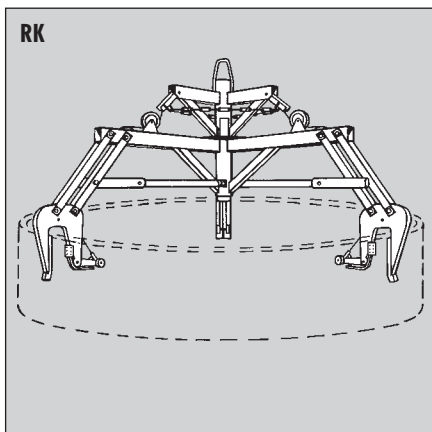
► As no radial pressure is exerted, it is possible to handle green products.

► Suitable for use with fork lift trucks as well as loading cranes.

(Supplied without connecting hoses to the fork lift truck).

Type	Gripping Range for Rings and Cones ID mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
RKG-S 20	600 – 2,000 (23 ¹ / ₂ – 79")	2,500 (5,500)	600 (1,320)	5720.0002
RKG-S 25	600 – 2,500 (23 ¹ / ₂ – 98")	2,500 (5,500)	630 (1,390)	5720.0003
RKG-SS 30	600 – 3,000 (23 ¹ / ₂ – 118")	3,000 (6,600)	820 (1,810)	5720.0094

If possible, the Ring- and Cone Clamp RKG S 20 / S 25 should be attached to the fork lift truck with a crane boom (see pages 7.8 and 7.9) and a hydraulic rotator.



Manhole Ring Clamp RK

Fully mechanical operation, so it can be used with any lifting equipment.

► Also suitable for manhole rings (DIN 4034 Part I) due to its extra-deep claws and rubber supports.

► Adjusted to the dimensions of the manhole ring by bolts. As only the side wall is gripped, no radial pressure is exerted. Making it suitable

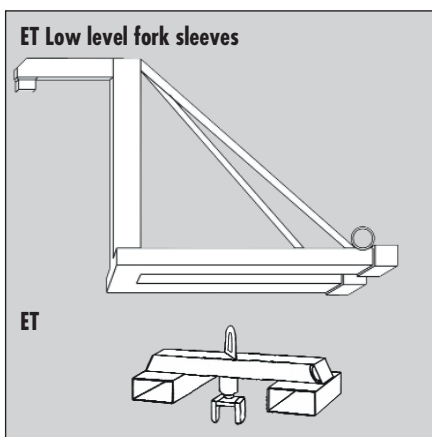
See page 7.8 for suitable crane boom for RK.

for handling green products.

Standard Specifications:

- Crane eye for attaching to crane hook.
- Equipped with 2 or 3 grippers, according to model.
- Fully automatic change-over from "full" to "empty", making it an absolute one-man machine.

Type	Gripping Range for Rings ID mm (in)	Number of Grippers	Opening Width of Grippers mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
RK I	800 – 1,500 (31½ – 59")	2	60 – 180 (2½ – 7")	2,000 (4,400)	150 (330)	5720.0030
RK IUS	36 – 60"	2	2½ – 7"	3,200 (7,100)	240 (530)	5720.0032
RK II	1,500 – 2,500 (59 – 98")	3	60 – 180 (2½ – 7")	3,000 (6,600)	320 (710)	5720.0033
RK III	2,000 – 3,000 (79 – 118")	3	60 – 180 (2½ – 7")	3,000 (6,600)	350 (770)	5720.0036



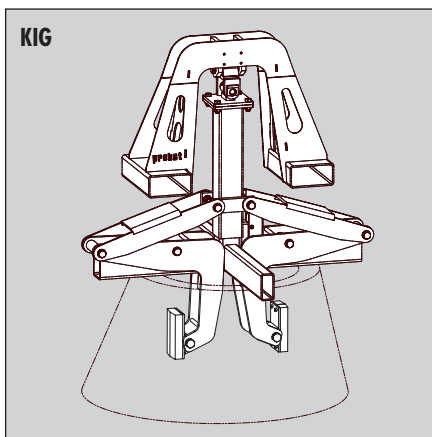
Fork Sleeves for Fork Lift Peaks ET-RK

Suitable for the RK, off set design to save lifting height.

Type	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
ET-RK with cross link	4,000 (8,800)	130 (285)	4720.0002
ET-RK swivel hook	4,000 (8,800)	140 (310)	4720.0028

Suitable for RK or other devices, mounted directly above the gripper including lifting eye for attaching to crane hook. ET 90° design with manual turning device which arrests itself every 90°.

Type	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
ET with cross link	4,000 (8,800)	30 (65)	4710.0010
ET 90° incl. cross link	4,000 (8,800)	35 (75)	4711.0002



Cone Insert Clamp KIG

Fully mechanical operation, thus making it universally suitable for cranes or fork lifts.

► Universally suitable for symmetrical and unsymmetrical cones with a cover hole diameter of 625 and 800 mm.

Standard Specifications:

- Low level fork sleeves to save lifting height.
- Exchangeable rubber metal bars for the gentle handling of cones.
- Fully automatic change-over from "full" to "empty".
- Eyelet for cranehook to forksleeve can be fitted later on.

Type	Gripping Range for Rings and Cones ID mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
KIG I	625 (24½") + 800 (31½")	2,000 (4,400)	210 (465)	5720.0020
KIG II	625 (24½") - 1,000 (39")	2,000 (4,400)	300 (660)	5720.0067
Lower price for no fork sleeves				5720.0057

Manhole Insert Clamp SP

Fully mechanical operation making it suitable for use with any lifting equipment.

► Suitable for lifting up to 3 rings at once with an internal diameter of 800 – 1,500 mm as well as individual rings and cones due to a height-adjustable facility.

► As the clamping is done by radial pressure from the inside, it has a limited use with green products.

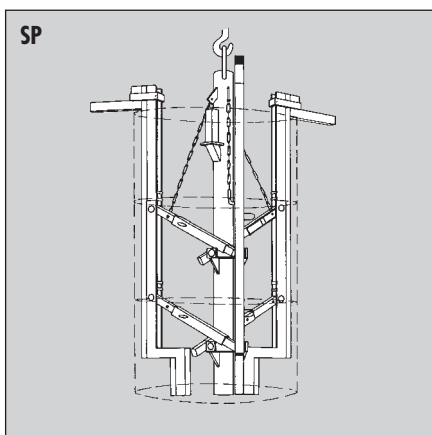
Adjusted to the dimensions of the rings by bolts. Offset grippers make it possible to handle cones without changing from a 1,000-internal-diameter.

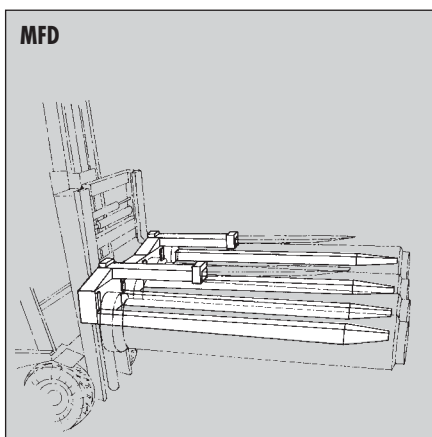
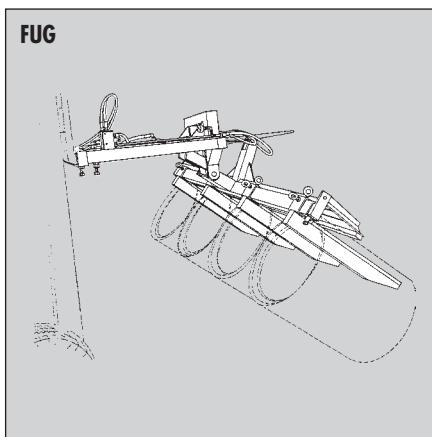
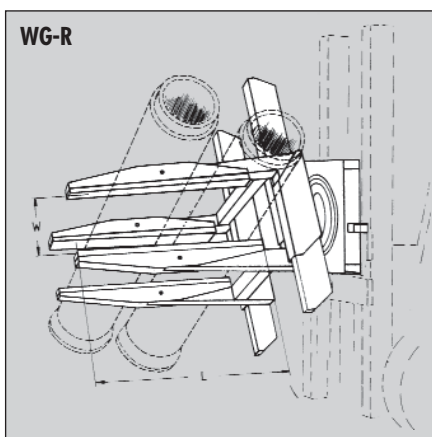
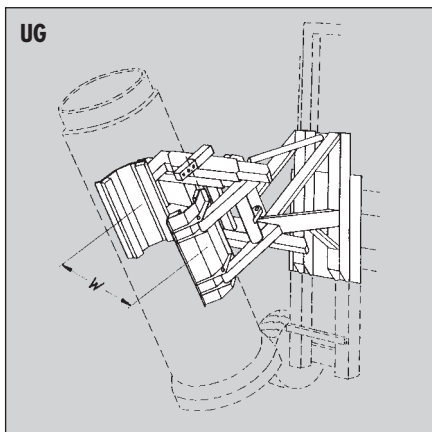
Standard Specifications:

- Crane eye for attaching to crane hook.
- Highly durable exchangeable rubber metal bars as gripping elements.
- Fully automatic change-over from "full" to "empty", making it an absolute one-man machine.

Type	Gripping Range for Rings and Cones ID mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
SP I	800 – 1,500 (31½ – 59")	2,000 (4,400)	165 (365)	5720.0055

Hydraulic operated Manhole Insert Clamp SP-H, for completely cured manhole rings see page 6.7.





Turning Device for Concrete Pipes UG

- Makes the handling of concrete pipes after production far more efficient.
- Due to large surfaced pressure pads, little pressure is exerted onto the pipe, meaning that green products can be safely handled.
- As the pipes are turned in a raised position,

there is no danger of damaging the joints or the steel pallets.

- The parallel movement of the gripping arms means little space is required between the pipes. (Supplied without connecting hoses to the fork lift truck).

Type	Suitable for outer diameters mm (in)	Usual trade opening range ID mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
UG 3.5	380 – 1,320 (15 – 52")	300 – 1,000 (11 ³ / ₄ – 39")	3,500 (7,700)	820 (1,810)	5730.0004
UG 4.5	400 – 1,580 (15 ³ / ₄ – 62")	300 – 1,200 (11 ³ / ₄ – 47")	4,500 (9,900)	1,200 (2,650)	5730.0025
UG 6.5	400 – 1,580 (15 ³ / ₄ – 62")	300 – 1,200 (11 ³ / ₄ – 47")	6,500 (14,300)	1,560 (3,450)	5730.0013

Special models eg. for moving 2 pipes at once, available on request. See page 7.9 for hydraulic connection hoses. If the fork lift truck only has one hydraulic circuit, see page 7.9 for the electromagnetic change-over valve ELMV.

Rotating Clamp for Concrete Pipes WG-R

A novel method for rotation of several pipes in one operational sequence, regardless of accuracy of individual pipes interspace. Length of rubber grippers L = 1,650 mm. The clamp attachment enables the rotating of the pipes by +/- 90° (rotating range 360°

endless) – without shunting the forklift.

It is possible to pick up 3 pipes with an ID width of 300 – 400 mm, 2 pipes with ID 500 – 600 mm or 1 pipe up to 1,000 mm ID.

(Supplied without connecting hose to the forklift-truck).

Type	Opening Width W mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
WG-R	300 – 1,300 (11 ³ / ₄ – 51")	4,000 (8,800)	930 (2,050)	5730.0007

Special model available on request. If only one hydraulic circuit is available, see page 7.9 for electromagnetic change-over valves ELMV.

Small Pipe Turning Device FUG

Makes the handling of small pipes after production more efficient.

- Up to 5 small pipes with a ID width of 300 mm and a length of 1 m can be gripped at once. There is a manual adjustment to accommodate other widths. In one manoeuvre the pipes are transported from the production site and, by means of the inbuilt tilting

mechanism, are then layed flat for storage.

- As the pipes are gripped on their walls, no radial pressure is exerted on them, meaning that green products can be safely handled.
- 2 separate hydraulic circuits are needed on the side of the fork lift truck.

(Supplied without connecting cables to the fork lift truck).

Type	Gripping Range	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
FUG	up to 5 pipes with a width of 300 mm (11 ³ / ₄ "	1,500 (3,300)	450 (990)	5730.0006

Multiple Forks MFD

For picking up several concrete pipes at the same time.

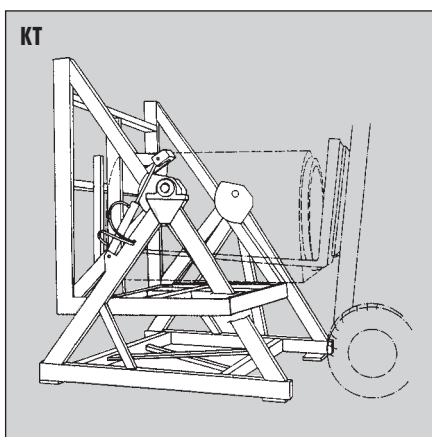
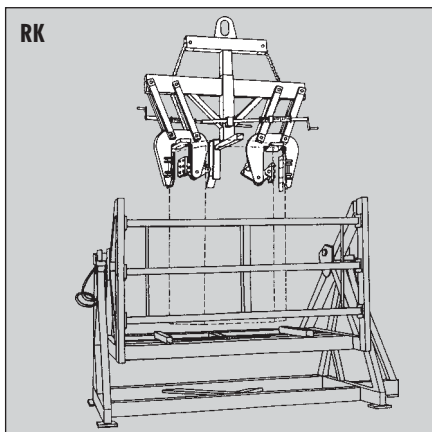
- The device is lifted using the fork lift truck forks, with a lockpin on the forks.

- The spreader bar is lined with rubber so that the pipes cannot be damaged.
- Distance between the bells of the pipes: 20 mm.
- Ideal for stacking the storage area and for loading trucks.

Type	ID of pipe mm (in)	No. of pipes	Length of pipes mm (in)	Dead Weight kg (lbs)	Order-Number
MFD 25-5	250 (9 ³ / ₄ "	5	2,500 – 3,000 (98 – 118")	300 (660)	5740.0001
MFD 30-5	300 (11 ³ / ₄ "	5	2,500 – 3,000 (98 – 118")	300 (660)	5740.0002
MFD 40-4	400 (15 ³ / ₄ "	4	2,500 – 3,000 (98 – 118")	350 (770)	5740.0003
MFD 50-4	500 (19 ³ / ₄ "	4	2,500 – 3,000 (98 – 118")	400 (880)	5740.0025
MFD 60-4	600 (23 ¹ / ₂ "	3	2,500 – 3,000 (98 – 118")	400 (880)	5740.0026

On request additional price for polyamid lining of forks to protect the pipes.

Other widths and numbers available on request.



Large Pipe Clamp RK

Using the mechanical Large Pipe Clamp, concrete pipes up to 2,800 mm ID width can be safely gripped once manufactured and then placed on a tilting table.

- ▶ Fully mechanical operation, making it suitable for use with any lifting equipment.
- ▶ Adjustable to the dimensions of the pipe in a hand crank.

Standard Specifications:

- ▶ Crane eye for attaching to crane hook.
- ▶ Fully automatic change-over from "full" to "empty", making it an absolute one-man machine.

Type	Gripping Range for Rings ID mm (in)	Number of Gripping Claws	Opening Width of Gripping Claws mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
RK IV	1,000 – 1,800 (39 – 71")	2	85 – 220/ 135 – 270 (3 ¹ / ₄ – 8 ³ / ₄ "/ 5 ¹ / ₄ – 10 ³ / ₄ "	7,500 (16,500)	600 (1,320)	5730.0001
RK V	1,500 – 2,600 (59 – 102")	2	80 – 240/ 140 – 300 (3 ¹ / ₄ – 9 ¹ / ₂ "/ 5 ¹ / ₂ – 11 ³ / ₄ "	15,000 (33,100)	1,700 (3,750)	5730.0002
RK VI	1,500 – 2,800 (59 – 110")	2	90 – 255/ 165 – 330 (3 ¹ / ₂ – 10"/ 6 ¹ / ₂ – 13")	25,000 (55,100)	3,200 (7,100)	5730.0009

Designed in the same way as the Manhole Ring Clamp RK, but measurements are to suit concrete pipes.

Tilting Table KT

Using the Large Pipe RK, the concrete pipes up to 3 m in length are placed on the tilting table. Then the pipes are tilted hydraulically by 90°. The pipes, now lying flat, are then removed by a fork-lift truck or crane.

- ▶ Electro-hydraulically operated tilting table.
- ▶ Tilting table equipped with fork sleeves for fork lift trucks so that the whole device can be moved easily.

Type	Internal Table Width mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
KT 15	3,450 (136")	15,000 (33,100)	6,000 (13,200)	5740.0008
KT 25	3,600 (142")	25,000 (55,100)	15,000 (33,100)	5740.0007

Gantry Crane Rotating Clamp for Concrete Pipes PWG-R

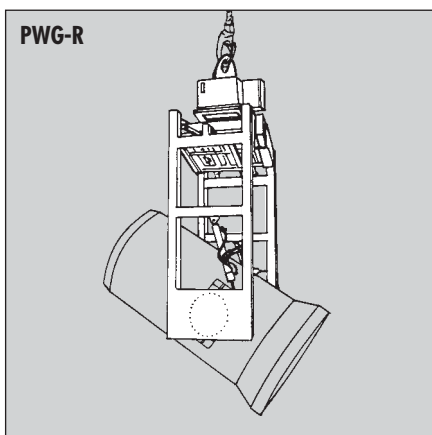
A special hydraulic clamp designed to lift and rotate large concrete pipes by 90°.

- ▶ Space saving use on gantry crane. Fully hydraulic clamp, adjustable to various diameters.
- ▶ Large surface pressure pads with swinging rubber grippers ensure a good pressure distribution all over and so enable the production area

to be cleared more quickly.

- ▶ The parallel movement of the gripping arms means that little space is required between the pipes.

- ▶ Hydraulically powered by means of an electrohydraulic hydraulic pump unit, electrical connection approx. 4 kW, V 3 phase.

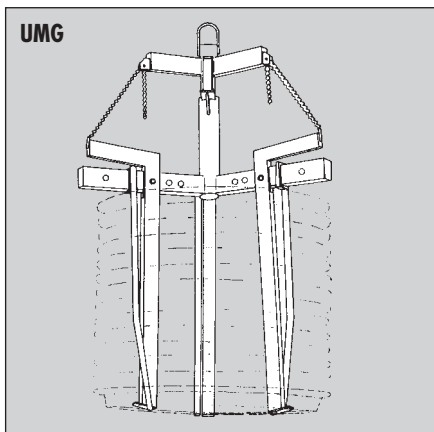


Type	Opening Width mm (inch)	Turning Range	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order Number
PWG-R 3	400 – 1,200 (15 ³ / ₄ – 47")	100°	3,000 (6,600)	1,800 (4,000)	5740.0013
PWG-R 7	1,200 – 1,900 (47 – 75")	100°	7,000 (15,400)	2,800 (6,200)	5740.0014
PWG-R 13	1,800 – 3,100 (71 – 122")	100°	13,000 (28,700)	7,000 (15,400)	5740.0021
PWG-R 20	1,800 – 3,100 (71 – 122")	100°	20,000 (44,100)	8,600 (19,000)	5740.0015

Recommended Accessory: Electrical Installation EI-II, see typelist page 7.10

Technical data contained in this catalogue can be modified without prior notice in the interest of progress.

UMG



Steel Pallet Grab UMG

For lifting stacks of steel pallets and loading them into the magazine of the manhole manufacturing machine. Universally adjustable.

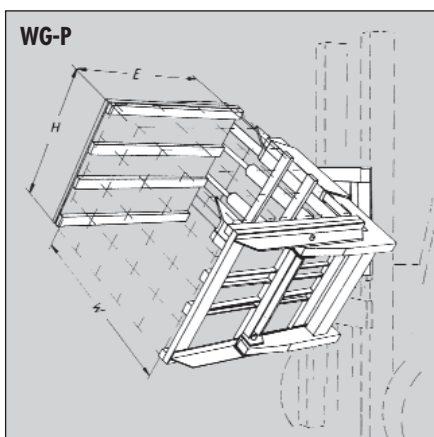
- Fully mechanical operation.

Standard Specifications:

- Crane eye for attaching to crane hook.
- Fully automatic change over from "full" to "empty", making it an absolute one-man machine.

Type	Opening Range for Steel pallet ID mm (in)	Number of Grippers	Height E mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
UMG 30/80	300 – 800 (11 ³ / ₄ – 31 ¹ / ₂ "	3	1,200 (47")	1,000 (2,200)	90 (200)	5720.0051
UMG 60/150	600 – 1,500 (23 ¹ / ₂ – 59")	3	1,200 (47")	1,500 (3,300)	150 (330)	5720.0050
UMG 150/300	1,500 – 3,000 (59 – 118")	3	1,200 (47")	2,000 (4,400)	290 (640)	5720.0063

WG-P



Stack Rotating Clamp WG-P

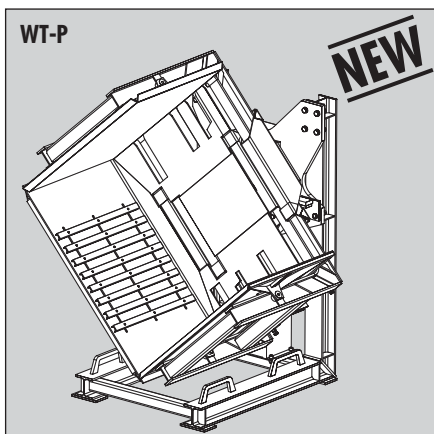
Turns packs of building hollow blocks through 180° so that the blocks do not have to be turned on site by hand (turning range 360° endless). Can also be used for stacking products produced on an egglayer machine. The large opening range means many other products can also be turned

quickly and safely through 360°.

- The dimensions of the rubber grippers are dependent on the range of goods to be lifted. (Supplied without connecting hoses to the fork-lift-truck).

Type	Opening Width W mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
WG-P	300 – 1,300 (11 ³ / ₄ – 51")	4,000 (8,800)	1,000 (2,200)	5740.0006

WT-P



Hydraulic Pallet Turning Device WT-P

Suitable to pick up and turn a complete pack on a pallet by 180°. Turning speed approx. 10 seconds for 180° rotation.

- Integrated fork sleeves for internal transport of the complete unit within the factory.

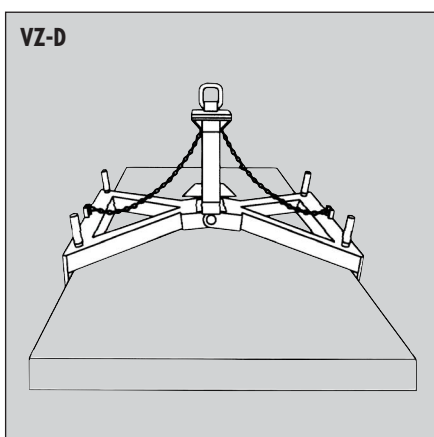
- Radio remote control for "gripping" and "rotation".

Standard specifications:

- Electro hydraulic power pack, ready to be plugged into the electrical power supply.

Type	Pack Dimension mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
WT-P	1,300 x 1,000 x 1,000 (51" x 39" x 39")	3,000 (6,600)	1,300 (2,850)	5740.0070
Without remote control			on request	

VZ-D



Laying Clamp for Hollow Core Slabs VZ-D

Suitable for gripping and laying hollow core slabs on site or for internal use.

Opening range suitable for width of slabs 1,200 mm.

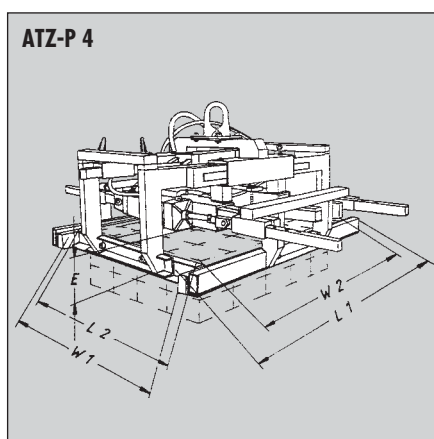
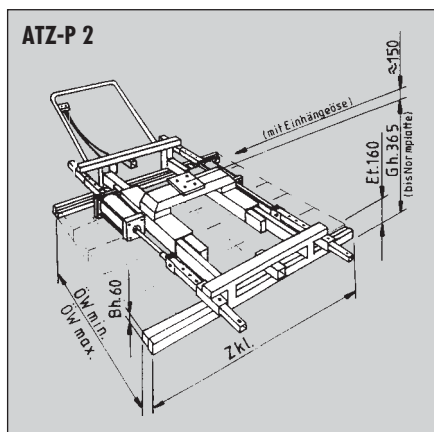
Mostly this type of grab is used as a pair, suspended on a spreader bar.

Standard Specifications:

- Lifting eye for attaching to crane hook.
- Automatic release for fully automatic switch-over from "full" to "empty".
- Handles to guide the clamp.
- Security chain for the use with the crane.

Type	Opening Width W mm (in)	Gripper Length L mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
VZ-D-2,5	1,200 (47")	1,000 (39")	2,500 (5,500)	106 (235)	5740.0036
VZ-D-5/3000	1,200 (47")	3,000 (118")	5,000 (11,000)	250 (550)	5740.0055
VZ-D-6	1,200 (47")	1,000 (39")	6,000 (13,200)	230 (510)	5740.0037

Versions more favourable in price, without automatic release, with manual locking, on request.
Spreader bar for laying of long and heavy elements on request.



Pneumatic Cubing Clamp ATZ-P

Available with 2 or 4 sided clamping, depending on the size and shape of the paving blocks. Universally suitable for destacking or restacking one or two layers of paving blocks at a time. Mostly applied in conjunction with sandblasting machines.

Standard Specifications:

- ▶ Crane eye for attaching to crane hook.
- ▶ Pneumatic cylinder and additional manual adjustment enables a large opening range.
- ▶ Height adjustment facility.
- ▶ Fitted with manual control valve on the guiding handle.

Type	Opening Width Main Gripper W1 mm (in)	Opening Width End Gripper W2 mm (in)	Height E mm (in)	Gripper Length L mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
ATZ-P 2	500 – 1,100 (19 1/4 – 43")		160 (6 1/4")	1,250 (49")	400 (880)	120 (265)	5750.0148
ATZ-P 4	560 – 1,320 (22 – 52")	760 – 1,360 (30 – 54")	160 (6 1/4")	1,250/540 (49/21 1/4")	400 (880)	260 (570)	5750.0096
Connection spiral hose, length approx. 5,000 mm (200") / Connection 12 L.							2300.0001

Other opening widths and heights are also available.

Reinforced type on request, for example to install in automatic transfer station for concrete blocks. As an alternative to the pneumatic impulsion there are also pure electrical impulsions available.

Rubber Grippers

Type	Length mm (in)	Carrying Capacity per pair kg (lbs)	Order-Number
GB1-540 L	540 (21 1/4")	12 (25)	4000.0220
GB1-650 L	650 (25 1/2")	14 (30)	4000.0223
GB1-700 L	700 (27 1/2")	15 (30)	4000.0225
GB1-760 L	760 (30")	17 (35)	4000.0227
GB1-800 L	800 (31 1/2")	18 (40)	4000.0230
GB1-850 L	850 (33 1/2")	19 (40)	4000.0231
GB1-900 L	900 (35 1/2")	20 (45)	4000.0234
GB1-1000 L	1.000 (39")	22 (50)	4000.0236
GB1-1100 L	1.100 (43")	24 (55)	4000.0238
GB1-1200 L	1.200 (47")	26 (60)	4000.0240
GB1-1250 L	1.250 (49")	27 (60)	4000.0242
GB1-1300 L	1.300 (51")	28 (60)	4000.0243

Vertical Guide SRF

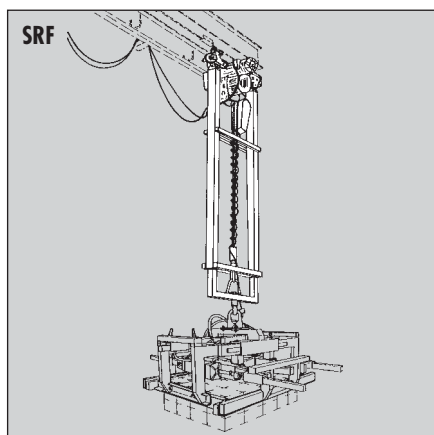
Telescopic Guide for stationary equipment to lift the various devices (eg. pneumatic cubing clamp, rotating clamp or similar). For fitting onto the available crane runway to be supplied site-wise.

Work is made easier due to the electrical travelling operation and the electric chain hoist, particularly when moving paving stone equipment. (Stock- and sand-blasting equipment) or when cubing concrete products by hand, using the appropriate device.

Standard Specifications:

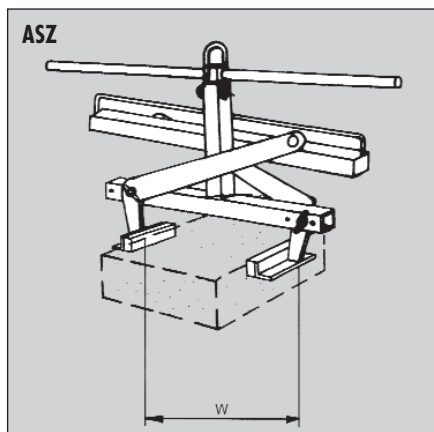
- ▶ Electric chain hoist (choice of lifting power), with 2 lifting speeds (electrical installation to be done by the customer).

- ▶ Electric trolley with 2 speeds (electrical wiring done by the customer).
- ▶ 2 bottom boom carriages (unpowered), positioned suspended crossways to the direction of travel (to ease the handling of the attached devices and to improve the exact positioning of these devices).
- ▶ Control bulb for 4 functions, with electro-flex cable.
- ▶ Crane hook for lifting a piece of equipment (with manual turning device which stops itself after each 90°).
- ▶ Large polyamide slides for the telescopic action.



Type	Carrying Capacity kg (lbs)	Order-Number
SRF-900	900 (1,980)	5750.0008

When ordering, please state the type of crane runway.



Sorting Clamp ASZ/ASZ-R

This universal outsourcing clamp has a wide adjustable opening width and can be used for a wide range of products.

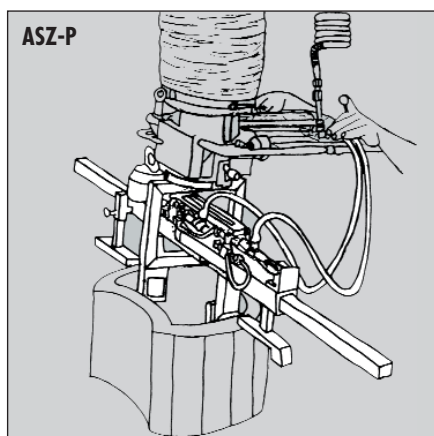
There are two different variations:

1. ASZ for the efficient outsourcing of concrete steps, kerb stones and similar.
2. ASZ-R for the handling of sewerage elements. The grippers are prism-shaped to grip the round contour of the rings.

Standard Specifications:

- ▶ Lifting eye for attaching to crane hook
- ▶ Lifting handle
- ▶ Handle with turning range 90° depending on space.
- ▶ Exchangeable rubber metal bars, to suit the requirements.
- ▶ Automatic release for fully automatic switch-over from „full“ to „empty“.

Type	Opening Width mm (in)	Inside Height mm (in)	Gripper Length L mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
ASZ	600 - 1.200 (23 ¹ / ₂ - 47")	120 (4 ³ / ₄ ")	200 (7 ³ / ₄ ")	250 (550)	23 (50)	5310.0259
Additional adapters for ASZ (to be mounted on the basic grippers of the outsourcing clamp).						
A 50			50 (2")			4310.0376
A 100			100 (4")			4310.0377
ASZ-R	∅ 600 - 1.200 (23 ¹ / ₂ - 47")	120 (4 ³ / ₄ ")	300 (11 ³ / ₄ ")	250 (550)	25 (55)	5310.0281



Pneumatic Sorting Clamp ASZ-P

This universal outsourcing clamp offers a versatile use due to large adjustable opening width. Optimum for slabs, kerb stones and wall-rings for plants, etc.

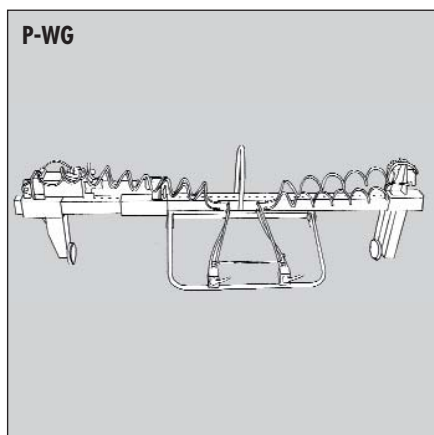
- ▶ Suitable for attachment to a vacuum lifting unit or to a overhead or jib crane.
- ▶ Cylinder lifting 150 mm: the further range of opening width is mechanically adjustable.

Standard Specifications:

- ▶ Crane eye for attaching to crane hook or alternatively with flange plate to attach to a vacuum lifting unit.
- ▶ Pneumatic closing cylinder and additional manual adjustment to achieve larger opening width.
- ▶ Hand-guided valve with closing cylinder.

Type	Opening Width gripping inside mm (in)	Opening Width gripping outside mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
ASZ-P	270 - 600 (10 ³ / ₄ - 23 ¹ / ₂ ")	220 - 1.050 (8 ³ / ₄ - 41")	120 (265)	18 (40)	5740.0023

Other opening widths and heights are available on request.



Pneumatic Rotating Clamp P-WG

For rotation by 90° or 180° of concrete products as for example slabs, side-angles, kerb stones.

Pneumatic clamping and rotating around the longitudinal axis.

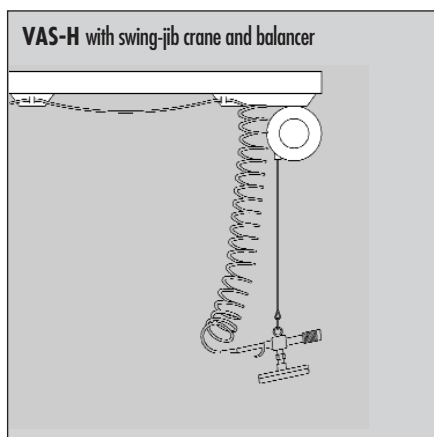
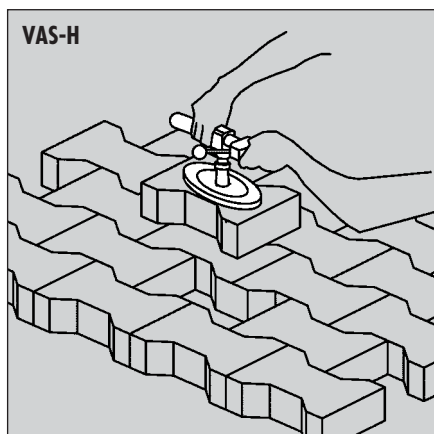
Standard Specifications:

- ▶ Lifting eye for attaching to crane hook.

- ▶ Pneumatic closing cylinder and additional manual adjustment for a larger opening width.
- ▶ Manual-controlled valves for clamping and rotating at the guide handle.
- ▶ Grippers coated with exchangeable rubbers.

Type	Opening Width mm (in)	Inside Height mm (in)	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
P-WG	600 - 2.000 (23 ¹ / ₂ - 79")	285 (11 ¹ / ₄ ")	500 (1,100)	200 (440)	5750.0135

Special designs on request!



Vacuum-Airspeed VAS-H

► This innovative tool is driven by compressed air and saves a lot of time.

No painful and labor-intensive shifting of the pavers when one paver should be picked out of the middle of production unit.

Specially designed for the quick and simple handling of pavers during quality control. By using this tool, pavers can be picked up immediately after production or before cubing.

► Hand operated valve to switch off the compressed air flow in order to save energy.

► Seal exchangeable within seconds.

► Suction plates exchangeable by quick coupling.

► Low dead weight.

Set consisting of:

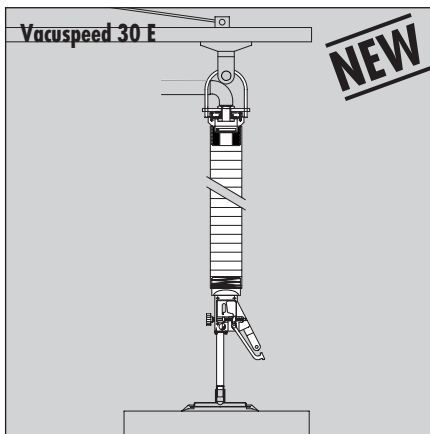
- 1 Operating unit
- 1 Suction plate SPS VAS 15
- 1 Suction plate SPS VAS 4,5

Type	Suction Plate	Suction Plate Dimension mm (in)	Carrying Capacity kg (lbs)	Dead Weight (incl. 1 Suction Plate) kg (lbs)	Order-Number
VAS-H-Set	SPS VAS 15	120 x 200 (4 ³ / ₄ " - 7 ³ / ₄ "	15* (35)*	2 (4)	5740.0035
	SPS VAS 4,5	95 x 145 (3 ³ / ₄ " - 5 ³ / ₄ "	4,5* (10)*	2 (4)	

Type	Description	Order-Number
Swing-jib crane	Load Extension 2 m (79")	4200.0056
	Load Extension 3 m (118")	4200.0057
	Load Extension 4 m (157")	4200.0058
Spring-load balancer	load carrying capacity 3 - 5 kg (7 - 10 lbs)	4200.0059

Type	Description	Order-Number
Replacement seal, no difficult glueing, seals easy to attach.	for SPS VAS 15	4250.0036
	for SPS VAS 4,5	4250.0037

* Value at 200 mbar under-pressure



Vacuum Hose Lifter

Vacuspeed

The new innovative vacuum hose lifter **Vacuspeed** allows high increases in productivity during the handling of different elements, such as pavers and slabs.

- ▶ The vacuum is used for holding the materials as well as for lifting and lowering them.
- ▶ Can be operated easily, exactly and quickly.
- ▶ The result: efficient working practice and less stress on your workers.

▶ Materials of all types and weight to max. 30 kg (Type Vacuspeed 45 up to 45 kg) can be easily lifted, sorted, packed or laid.

Advantage: No need to get access sideways to the products for gripping. Access from the top is fully sufficient!

- ▶ Lifting and lowering speed infinitely variable.
- ▶ The vacuum energy is used for holding as well as for lifting and lowering the load."
- ▶ The Vacuspeed 30 E / 30P / 45 can be easily and quickly hooked to any kind of wall swing crane or pillar swing crane or similar and can be used immediately.

Vacuspeed 30 E

Easy setup, operation only requires connection to the compressed air-system (vacuum production by means of ejector, driven with compressed air).

Standard specification:

Ejector, hose lifting unit, operating valve unit with bow-handle.

Type	Max. Suction Volume	Air Consumption	Required Air Pressure	Lifting Height mm (in)	Carrying Capacity* kg (lbs)	Order-Number
Vacuspeed 30 E	976 NL/min	376 NL/min	4-6 bar	1.700 (67")	30 (65)***	5760.0012

Accessories: Suction plate

Type	Dimension mm (in)	Carrying Capacity kg (lbs)**	Order-Number
SPS 30 for Vacuspeed 30 E	170 x 160 (6 ³ / ₄ " x 6 ¹ / ₄ "	30 (65)***	4761.0012

Other dimensions and shapes on request.

Vacuspeed 30 P

Vacuum production with this version by electrically operated vacuum pump. No need for a compressed air-line!

Standard specification:

Electric operated vacuum pump, vacuum hose lifter and operating valve unit with bow-handle.

Type	Power (kW)	Electrical Data	Lifting Height mm (in)	Carrying Capacity* kg (lbs)	Order-Number
Vacuspeed 30 P	1,25	3~346-420 50Hz	1.700 (67")	30 (65)***	5760.0013

Accessories: Suction plate

Type	Dimension mm (in)	Carrying Capacity** kg (lbs)	Order-Number
SPS 30 für Vacuspeed 30 P	170 x 160 (6 ³ / ₄ " x 6 ¹ / ₄ "	30 (65)***	4761.0012

Other dimensions and shapes on request.

Accessories: Supply Hose

Type	Diameter mm (in)	Length m (ft)	Order-Number
Supply Hose for Vacuspeed 30 P	25 (1")	piece good	4761.0008

Vacuspeed 45

Vacuum production with this version by electrically operated turbine (see type list page 7.24).

Standard specification:

Vacuum hose lifting unit with operating valve unit with hand-lever.

Type	Lifting Height mm (in)	Carrying Capacity* kg (lbs)	Order-Number
Vacuspeed 45	1.700 (67")	45 (100)***	5760.0014

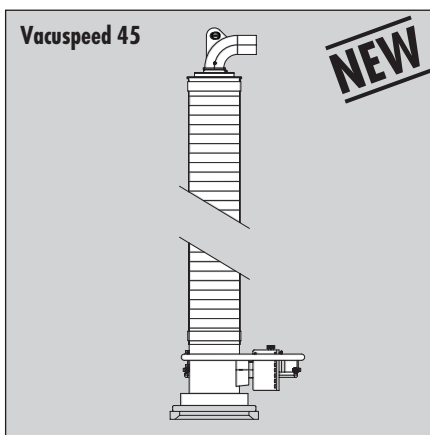
Accessories: Suction Plate

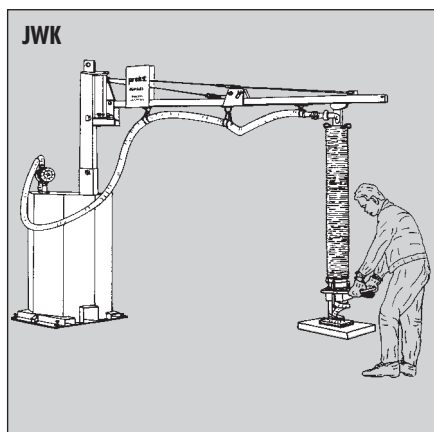
Type	Dimension mm (in)	Carrying Capacity** kg (lbs)	Order-Number
EG 45 for Vacuspeed 45	∅ 230 (9")	45 (100)***	4761.0014

Accessories: Supply Hose

Type	Diameter mm (in)	Length m (ft)	Order-Number
Supply Hose for Vacuspeed 45	60 (2 ³ / ₈ "	piece good	2520.0008

*Caution: Take note of the carrying capacity of the crane equipment.**Caution: It is forbidden to use the grippers EG with a smaller carrying capacity than the lifting unit HE! It is permissible to use grippers with a higher carrying capacity than the lifting unit. *** Value at 420 mbar under-pressure





Vacuum Hose Lifter for Internal Use

- ▶ Why use it? Simple: The lifting and lowering speed can be controlled extremely smoothly.
- ▶ Can be operated easily, exactly and quickly.
- ▶ Materials of all types and weights can be easily lifted, sorted and layed.
- ▶ The vacuum is used for holding the materials as well as for lifting and lowering them.
- ▶ The result: efficient working practices and less stress on your workers.

Jumbo Travelling Crane JWK

Complete ready-to-use unit comprising crane, ballast, electrics and vacuum turbine.

Complete with socket.

- ▶ The Jumbo Travelling Crane JWK combines all the advantages of the stationary vacuum hose lifter with the movable Jumbomobil JM!
- ▶ The machine can be moved easily by taking up with the fork prongs from a fork-lift truck for example.
- ▶ Various lifting units and grippers can be attached to the Jumbo Travelling Crane JWK (see specifications).
- ▶ Lifting unit, operating valve unit, grippers and special parts will suit any operation.

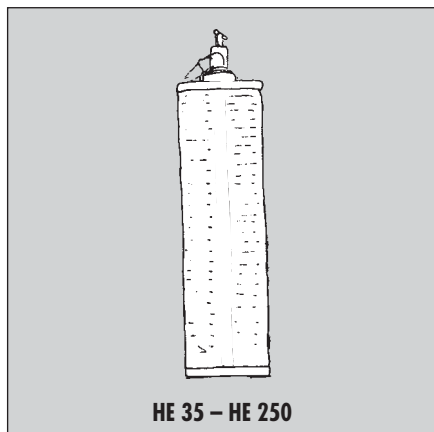
Standard Specifications:

- ▶ Ballast container, made of iron sheet, approx. 1.0 x 0.8 x 1.8 m height (40" x 31 1/2" x 71") should be filled with concrete, sand or steel scrap (approx. 1.45 m³, 1.9 cu yd). Thus ensuring the necessary stability.
- ▶ Adjusting screws for alignment.
- ▶ Easily constructed boom, 4,000/5,000 mm reach, height adjustable and with a swing of about 270°.
- ▶ Vacuum turbine VGE-SB-L-e-I with electric motor (electrical data see page 7.24) incl. pressure regulating valve DBV, motor protector switch and socket "CEKON" 16 A with integral phase switch, dust-filter with pre-separator and filter cartridge.
- ▶ Supply-hose D = 60 mm, 7,000 mm long. With quick coupling 2 inch. For coupling to a corresponding lifting unit.

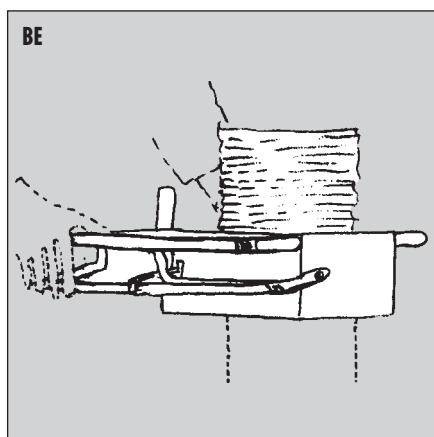
Type	Max. Carrying Capacity kg (lbs)	Reach mm (in)	Dead Weight kg (lbs)	Max. Ballast kg (lbs)	Order-Number
JWK 80/250-4	250 (550)	4,000 (157")	600 (1,320)	3,600 (7,900)	5280.0012
JWK 80/250-5	250 (550)	5,000 (197")	600 (1,320)	4,600 (10,100)	5280.0013

To complete your Jumbo Travelling Crane JWK you will need:

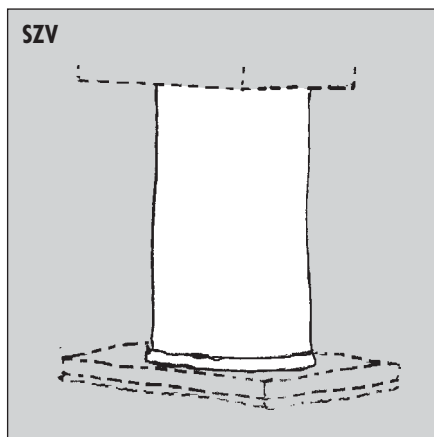
- ▶ Roller Suspension
- ▶ Lifting Unit
- ▶ Operating Valve Unit
- ▶ Suction Plate



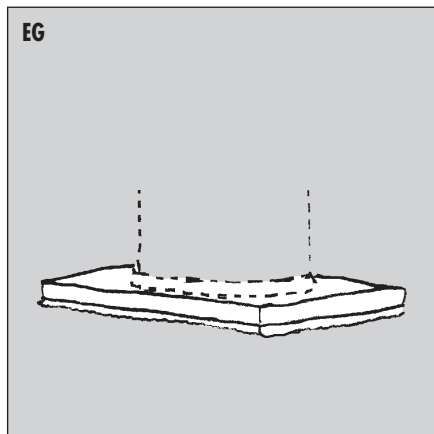
HE 35 - HE 250



BE



SZV



EG

Vacuum Hose Lifter Components

Lifting Hose Units

For use with the Jumbo Travelling Crane JWK, the Jumbomobil JM or on any other crane carrier.

Consists of:

- ▶ Rotational Device and quick coupling, 2 inch.
- ▶ Lifting hose unit with protective fabric as well as a flange for fitting onto the operating

Type	Carrying Capacity* kg (lbs)	Diameter Lifting Hose mm (in)	Lifting Height mm (in)	Order-Number
HE 85	85*** (190)***	178 (7")	1,700 (67")	4210.0002
HE 150	150*** (330)***	230 (9")	1,700 (67")	4210.0132
HE 200	200*** (440)***	250 (9 ³ / ₄ ")	1,700 (67")	4210.0134
HE 250	250*** (550)***	300 (11 ³ / ₄ ")	1,700 (67")	4210.0320
If necessary: roller suspension for C-beam				4220.0042

Operating Valve Unit BE

▶ For the direct coupling onto the lifting unit HE.

Consists of:

- ▶ Main body with handle 500 mm long, fixing screw for adjusting the hovering position, safety gauge.

Type	For use with	Order-Number
BE	HE 35 up to HE 250	4210.0211

Hose Cylinder Extension SZV

▶ Only to be used as and when required to enable ergonomic working conditions, at certain heights.

▶ Length 300 mm

Consists of:

- ▶ Vacuum pipe with quick fasteners and transmission bar for the steering of the operating valve unit.

Type	For use with	Order-Number
SZV	HE 35 up to HE 150	4210.0007
SZV-200	HE 200 up to HE 250	4210.0008

Suction plates

▶ For the direct coupling to the operating valve unit or the hose cylinder extension.

Consists of:

- ▶ One or more suction plates with attached foam rubber seal, including lifter for tactile steering.

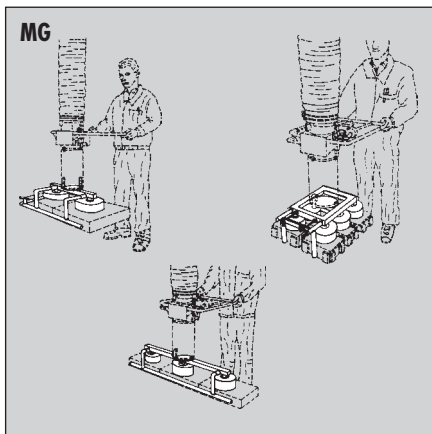
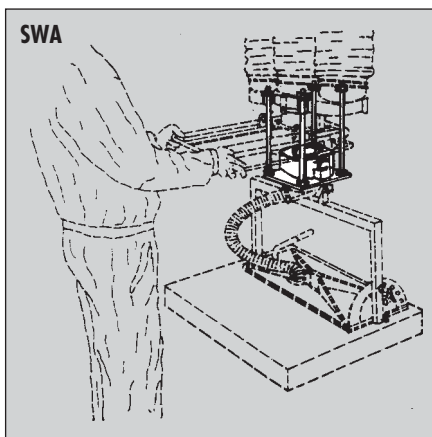
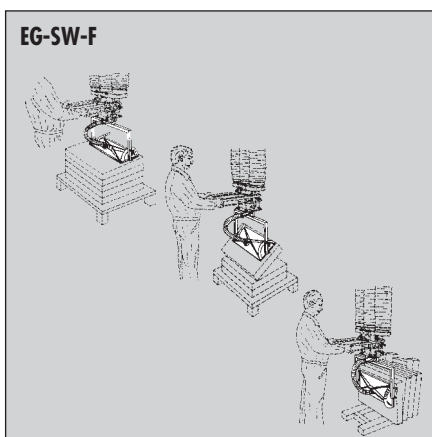
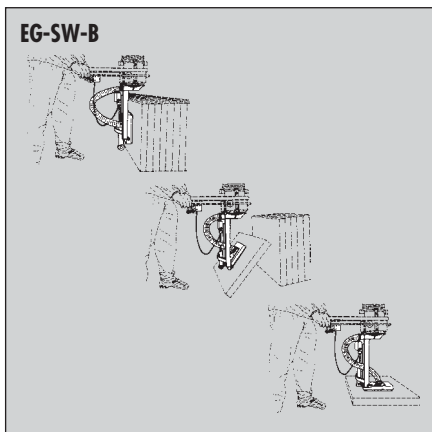
Type	Dimension mm (in)	Carrying Capacity kg** (lbs)	Order-Number
EG 85	255 x 255 (10" x 10")	85*** (190)***	4210.0051
EG 150	310 x 310 (12" x 12")	150*** (330)***	4210.0145
EG 200	330 x 330 (13" x 13")	200*** (440)***	4210.0331
EG 250	400 x 400 (16" x 16")	250*** (550)***	4210.0054

	Order-Number
Special Grippers , such as multiple grippers, profiled grippers or mechanical clamps for attaching to the vacuum-hose lifter	on request

* Caution: Take note of the carrying capacity of the crane equipment.

** Caution: It is forbidden to use the grippers EG with a smaller carrying capacity than the lifting unit HE! It is permissible to use grippers with a higher carrying capacity than the lifting unit.

*** Value at 420 mbar under-pressure



Vacuum Hose Lifter Components

Tilteable suction plate EG-SW

Suitable for different applications of vacuum hose lifting devices:

with automatic retraction EG-SW-B

► Specially designed for the laying of slabs, which are delivered to the site in the vertical position.

- Slabs can be lifted in the vertical position.
- Tilting into the horizontal position controlled by pulling a hand lever.
- After the installation of the slab in the horizontal position, the suction plate retracts itself into the vertical position by gas spring, when the hand lever is pulled once more.

Type	Dimension mm (in)	Carrying Capacity kg (lbs)	Order-Number
EG-SW-B-H-VH 150-33/33-0	330 x 330 (13" x 13")	150* (330)*	4210.0096

with free swiveling action EG-SW-F

► Specially designed for handling of slabs in natural stone processing factories.

► When positioning the suction plate out of the center of gravity on a horizontal slab, the slab is tilting itself into the vertical position when lifted. In this position, the slab can be stored vertically in a transportation pallet.

► When positioning in the center of gravity, the slab stays in the horizontal position when lifted.

- Suction plate can be locked in different positions by spring loaded bolt.
- With integrated suction release device for easier release of the suction plate from the slab element. Operating of the suction release device only when no load is lifted!
- Fastening suitable for Quick Change Adapter SWA 250.

Type	Dimension mm (in)	Carrying Capacity kg (lbs)	Order-Number
EG-SW-F-F-200-75/30-A	750 x 300 (29 ¹ / ₂ " x 11 ³ / ₄ "	200* (440)*	4210.0095
EG-SW-F-F-150-40/25-A	400 x 250 (15 ³ / ₄ " x 9 ³ / ₄ "	150* (330)*	4210.0190

Quick Change Adapter SWA

► Allows exchange of different suction plates within seconds.

► Essentially necessary for lifting capacity 200 kg and more.

► Short design as against SZV (page 2.12), specially suitable for in-plant paketize works in use with EG-SW-F-F-200-75-30-A.

Type	Length mm (in)	Max. Carrying Capacity kg (lbs)	Order-Number
SWA 200 (long version)	300 (11 ³ / ₄ "	250* (550)*	4210.0097
SWA 200 (short version)	100 (4")	250* (550)*	4210.0104

Multiple Suction Plate MG

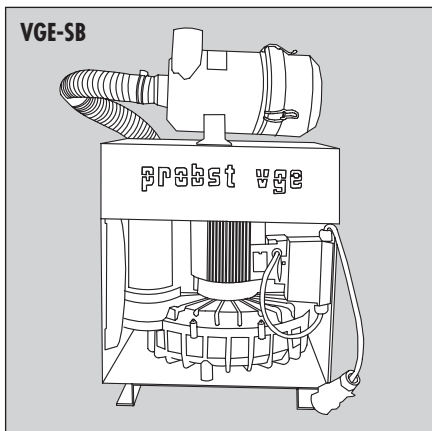
► Out of a large range of different standard components a suitable suction plate can be designed to solve different handling requirements.

► Seal of suction plate can be exchanged within seconds.

Type	Order-Number
MG	on request

* Value at 420 mbar under-pressure

VGE-SB



Vacuum Hose Lifter Components

- ▶ As an alternative to the complete Jumbo Travelling Crane, you can put together a special vacuum-hose-lifter-station, according to your particular need.
- ▶ Pillar and wall swing cranes or other types of cranes can be granted off site.
- ▶ **We will gladly advise you!**

Vacuum Turbine Unit VGE SB

Driven by electrical motor

Complete, ready-to-run unit for the electrical production of vacuum energy, with the following standard features:

- ▶ Strong, compact housing to be installed on the floor or against the wall.
- ▶ Powerful vacuum turbine with 3-phase electrical motor, for maximum underpressure 520 mbar.
- ▶ With large volume dust-filter with pre-separation for rough conditions in construction industry, including filter-cartridge.
- ▶ Type VGE-SB-L-e-I and VGE-SB-V-e-I with motor-protection switch, pressure relieve valve and electrical plug CEKON 16 A with integrated phase-switch.

Application:

VGE-SB-L-e-I: for more difficult use, such as handling of porous elements and high lifting-speed requirements.

(Suitable for all lifting hose dimensions, see Type List 7.22)

VGE-SB-V-e-I: with frequency-control for handling also small weights (up to 10 % of nominal lifting capacity).

- ▶ Suitable for elements with varying porosity.
- ▶ Energy-saving
- ▶ Extremely low noise level
- ▶ Low current requirements to start.

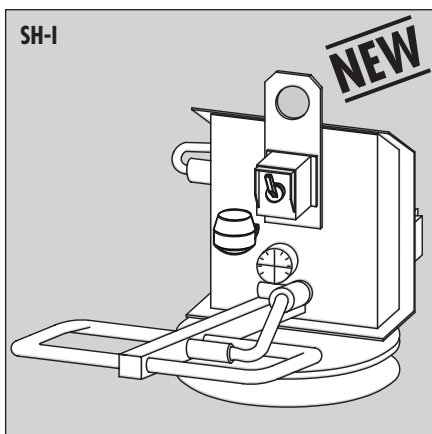
Type	Electrical Data	Order-Number
VGE-SB-L-e-I	4 kW 50Hz 3~190/255 V Δ or 330/440 V Y 4,8kW 60Hz 3~190/290 V Δ or 330/500 V Y	4760.0009
VGE-SB-V-e-I	4 kW 50Hz 3~ 400 V Y	4760.0010

Other versions available on request.

Supply Hose

- ▶ For connecting the turbine unit to the lifting unit.
- ▶ With 2" coupling and 2 hose clamps.

Type	Material	Diameter mm (in)	Length m (ft)	Order-Number
Supply Hose	Polyurethan	60 (2 1/4")	7 (23)	4210.0030



Vacuum Lifting Device SH-I for internal use

Heavy, large concrete slabs, prefabricated concrete elements etc. can be handled, palletized, sorted, lifted with this device easily and quickly.

- ▶ Short working cycles - no lifting of heavy weights by hand required!
- ▶ Economical, flexible way of working with no compromise on security!
- ▶ To be hooked to any kind of lifting equipment by crane shackle, chain, sling or similar.

▶ For many different applications and load requirements, different versions of the vacuum lifting device are available.

- ▶ Optional spreader bar systems are available in order to adapt the positions of the suction plates to the products to be handled.
- ▶ Electrical supply to be carried out by the user.

Standard specifications:

- 1 Vacuum Pump 16 m³/h (33.000 ft³/h)
- Basic body with handle

Type	Power	Carrying Capacity kg (lbs)	Dead Weight kg (lbs)	Order-Number
SH-I 250	electrical	250 (550)	31 (70)	5760.0015
SH-I 500	230 Volt / 50 Hz	500 (1,100)	42 (95)	5760.0016
SH-I 1000	single phase	1,000 (2,200)	70 (155)	5760.0017

Other versions available on request.

Accessories

For different application, special suction plates are recommended.

Carrying capacity depends on dimension of suction plate.

Suction Plate SPS-I for Vacuum Hose Lifter SH-I

Suction plates are equipped with the special Probst sponge rubber seal with rubber ring.

- ▶ Long lasting, low wear
- ▶ It is changed in a flash: take the old one off, put on the new one – finished!

Advantage:

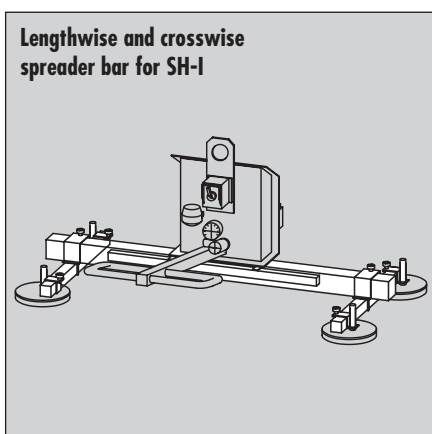
- ▶ Adapts to irregular surface perfectly.

Type	Dimension mm (in)	Carrying Capacity kg (lbs)	Order-Number
SPS-I 250	380 (15") 380 (15") round	250 (550)	4760.0013
SPS-I 500	670 (26 ¹ / ₂ ") 400 (15 ³ / ₄ ") oval	500 (1,100)	4760.0014
SPS-I 1000	790 (31") 520 (20 ¹ / ₂ ") oval	1,000 (2,200)	4760.0015
Replacement:			
No difficult glueing!	for SPS-I 250		4250.0003
Seals easy to attach.	for SPS-I 500		4250.0002
	for SPS-I 1000		4250.0005

Other versions available on request.

Other Recommended Accessories:

Type	Description	Order-Number
Lengthwise and crosswise spreader bar for SH-I	To suspend several suction plates	on request



Lengthwise and crosswise spreader bar for SH-I

Technical data contained in this catalogue can be modified without prior notice in the interest of progress.