

# BERGMANN

## APB 616

Genuine since over 40 years



The Alpha Pack bin APB 616 is a mobile press container which can be transported by Roll-On-Off vehicles. The Bergmann working principle compacts cardboard and recyclable fraction in a very efficient unique way.

Due to the linear positioning of the hydraulic cylinders highest compaction results can be achieved. In difference to the traditional cross cylinder working principle the cylinders of the APB 616 are mounted outside of the press chamber in an easy to assemble way.

The horizontal linear design of the cylinders anyway reduce the risk of repair or cleaning on these componets to a minimum.

The press piston on the APB 616 consists of a main piston and a hinged cover plate. The machine is equipped with a high press piston and has a deep movement inside the container.

As also the APB 616 was developed with the advantage of the linear cylinders which gives more than 15% more press force as cross-cylinder machines.



## Technical details



### Pendulum roof - emptying help

On traditional self-press-container there are very often problems with emptying of cardboard and plastic foil, even if not high compacted.

Reason for this is not only the character of the material but even the low cost construction of many containers. The consequence is much emptying time by frequent start and shake via the truck until the material comes out. Furthermore truck and compactor are highly worn by this treatment.

The APB 616 avoids these problem by a pendulum roof that has especially delevoped as an emptying help. This free hanging roof gives additional space for the material when the container is tipped and so any clamping of the material will be avoided.

### Linear compaction

Because of the linear composition of the hydraulical cylinders a 100% load transmission into the compaction material will be achieved.

With cardboard a compaction weight of 4 to 5 tons in a 20 qm container can be expected.



### Ease of maintenance

The easy accessible and clearly arranged hydraulic aggregate simplifies all necessary maintenance and repair work.



### Galvanized fittings

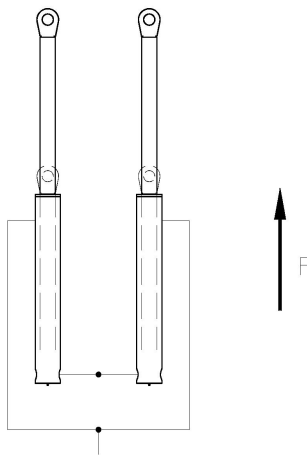
Movable and often used operating elements must be robust and fully functional. Therefore all fittings and lockings are weatherproofed galvanized.

## Comparison between the pressure force of Bergmann linear cylinder and the cross over piston of competitor

Assumption: both cylinders do have have a nominal pressing force of 31,4 tons

### Bergmann linear cylinder

The force  $F$  of cylinder forward movement remains the same during the complete compaction stroke and is always 100% as the force is taking effect in only one direction.



Calculation:

$$p = F/A \rightarrow F = p \cdot A$$

$$F = 200 \text{ bar} \cdot ((\pi \cdot 100^2 \text{ mm})/4)$$

$$= (200 \cdot 0,1) \text{ N/mm}^2 \cdot ((\pi \cdot 100^2 \text{ mm})/4)$$

$$= 157079 \text{ N}$$

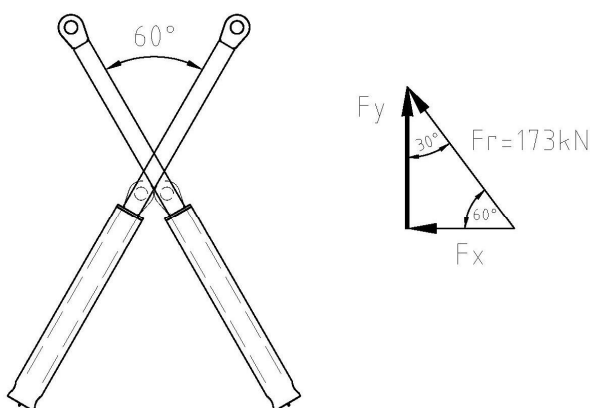
$$= 157 \text{ kN per cylinder}$$

$$\sim 314 \text{ kN totally for 2 cylinder}$$

$F_r$ , in forward direction is therefore 31,4 to

### Cross-over piston

The force of cylinder forward movement is minimal in rest position. It increases when cylinders are moving into end position, but the force will never reach 100% as a part of the force is not going in front direction but to outside position and therefore cannot be used.



Calculation:

$$F_x^2 + F_y^2 = F_r^2$$

$$\cos 30^\circ = F_y / F_r \rightarrow F_y = F_r \cdot \cos 30^\circ$$

$$F_y = 157 \text{ kN} \cdot \cos 30^\circ$$

$$= 136 \text{ kN per cylinder}$$

$$\sim 272 \text{ kN totally for 2 cylinder}$$

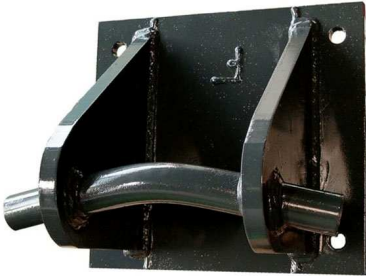
$F_y$ , in forward direction is therefore 27,2 to

**Totally this results in a loss of 4,2 tons not used compaction force (approx. 15%) by using an ineffective compaction system.**



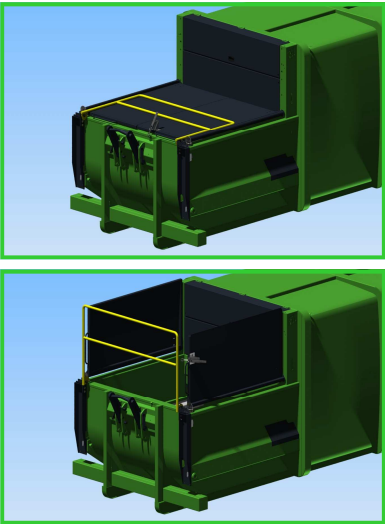
**Conclusion:** In direct comparison the investment costs are equal between a traditional 20 qm press container and a Bergmann-APB with 18 qm!!!

The advantage of the not necessary cleaning on a Bergmann machine is not even considered!

## Accessories

EDV-code	description	scope of delivery
23000101	 <p><b><u>Special hooks - rear 1425 mm high</u></b></p> <p>The front plate is to be welded on approximately 25 mm deeper and the hook is to be mounted in the lower position. The rear hook can be screwed on and is provided with a centring device.</p>	special hooks - rear, painted in RAL 7016
23000102	 <p><b><u>Special hooks - rear 1450 mm high</u></b></p> <p>The rear hook can be screwed on and is provided with a centring device. The front hook must be mounted in the lower position.</p>	special hook - rear, painted in RAL 7016
23000530 23000531	 <p><b><u>Rollers - 300 mm wide</u></b></p> <p>Robust front rollers, connected to the compaction area. 300 mm in width instead of 150 mm. The distance between the rollers is to be specified by the customer (see drawing <i>MB103RollerD</i>).</p>	plastic roller w = 300 mm (2 units) roller carriage (2 units) various mounting materials

EDV-code	description	scope of delivery
23000773	 <p><b><u>Steel rollers</u></b></p> <p>The plastic rollers will be replaced by steel rollers of the same width (150 mm).</p>	steel rollers (4 units)
23000776	 <p><b><u>Deflector plate for hook</u></b></p> <p>A welded plate behind the hook avoids damages on the press section from the truck hook whilst driving backwards.</p>	deflector plate steel parts
23000802 / 23000803	 <p><b><u>Additional pick-up system on both sides for roll-on roll-off vehicles with cable pick-up</u></b></p> <p>A cable pick-up on both sides is possible from the front and from the rear via an additional hook.</p> <p><b><u>Please note:</u></b> <i>Double stop bars are required should it be the case that the PACK-BIN is equipped with a bin-lift-tipping-device. This must be specified when the order is placed.</i></p>	cable hooks (4 units) switching runners (4 units)
23000836	 <p><b><u>Hydraulic 75% full signal</u></b></p> <p>A yellow light illuminates on the operating keypad via a hydraulic signal which is activated by an oil pressure switch. This signals that the container is 75% full. The full signal for different fill-levels can be adjusted upon request by the customer.</p>	oil pressure switch yellow signal light various electrical units



EDV-code	description	scope of delivery
<p>23000847</p> 	<p><b><u>Hydraulic 100% full signal</u></b></p> <p>A red light illuminates on the operating keypad via a hydraulic signal which is activated by an oil pressure switch. This signals that the container is 100% full.</p> <p>The full signal for different fill-levels can be adjusted upon request by the customer.</p>	<p>oil pressure switch</p> <p>yellow signal light</p> <p>various electrical units</p>
<p>23000822</p> 	<p><b><u>Side walls + L-shaped cover + limit switch shutdown</u></b></p> <p>Side walls are attached to the left hand side and the right hand side of the inlet opening.</p> <p>An L-shaped, torsion bar spring balanced cover with excentric locking mechanism and support pole close the inlet opening.</p> <p>Side walls and the L-shaped cover enable the machine to be operated even if the cover is closed.</p> <p>A limit switch turns the Pack-Bin off as soon as the cover is opened.</p> <p><b><u>Please note:</u></b> <i>The L-shaped cover is not intended for use with machines equipped with a bin-lift-tipping-device, as the BLT-device can then not be retracted for transportation purposes.</i></p>	<p>side walls left and right</p> <p>L-shaped cover with torsion bar springs with excentric locking mechanism and support pole</p> <p>limit switch with clamp fasteners</p> <p>all steel sheets painted in RAL 7016</p>
<p>23000828</p> 	<p><b><u>Safety bar in the front</u></b></p> <p>Safety bar over the filling area for the filling from ramp. The bar can be folded down for transport.</p> <p>Possible for one or two part lid.</p>	<p>safety bar</p> <p>fixing material</p>

EDV-code	description	scope of delivery
<p>23000825</p>  	<p><b><u>Cover located over the inlet opening – attached at the rear</u></b></p> <p>The cover is produced from steel sheets which are 2 mm thick and is attached at the rear of the inlet opening. An excentric locking mechanism, a supporting rod with safety chain as well as a rubber stopper are part of the cover.</p> <p>Two gas strutts facilitate the opening of the cover. An additional bracket is required for the supporting rods if the cover will be opened to an angle of 90°. Please specify this when placing an order.</p>	<p>cover</p> <p>gas powered springs (2 units)</p> <p>excentric locking mechanism</p> <p>rubber stopper</p> <p>supporting rod with safety chain</p> <p>fasteners</p> <p>all steel sheets painted in RAL 7016</p>
<p>23000826</p>   	<p><b><u>Two-part cover – attached on the left hand side and the right hand side</u></b></p> <p>Both halves of the cover come equipped with a gas strutts each in order to facilitate the opening of the cover and also come with a supporting rod each. The rubber buffers serve as an end stop.</p> <p>The covers are locked into position with a excentric locking mechanism which ensures the safe transport.</p> <p>The covers can also be ideally used as a side wall height extension.</p>	<p>cover – left hand side and right hand side with supporting rod and gas powered spring</p> <p>plastic mounted, galvanised joint</p> <p>rubber buffer</p> <p>excentric locking mechanism</p> <p>all steel sheets painted in RAL 7016</p>



EDV-code	description	scope of delivery
<p>23000824</p> 	<p><b><u>Side walls – attached on the left hand side and right hand side over the inlet opening</u></b></p> <p>The high side walls are made up of two side walls, each made from steel sheets which are 3 mm thick. The walls are approximately 650 mm in height. An L-shaped cover can be retrofitted at any time.</p>	<p>side walls – left hand side and right hand side</p> <p>fasteners</p> <p>all steel sheets painted in RAL 7016</p>
<p>23000823</p> 	<p><b><u>Funnel located above the inlet opening</u></b></p> <p>The funnel which is located above the inlet opening is made up of two side walls as well as a front wall. These walls are each made out of steel sheets of 3 mm in thickness. The funnel is approximately 650 mm in height. A cover can be retrofitted at any time.</p>	<p>side walls – left hand side and right hand side</p> <p>front wall</p> <p>fasteners</p> <p>all steel sheets painted in RAL 7016</p>
<p>23000869</p> 	<p><b><u>Additional remote control with 5 metre-long cable</u></b></p> <p>In addition to the standard operating keypad, you will receive a separate keypad including a metal protective housing and a 5 metre-long cable. The keypad will be connected to the machine via a 16-pin plug. The machine can then be operated via both keypads.</p>	<p>operating keypad</p> <p>robust metal protective housing painted in RAL 7016</p> <p>5m-long extension cable including protective piping</p> <p>multi-way plug socket</p> <p>electrical accessories</p>

EDV-code	description	scope of delivery
<p>23000861</p>     	<p><b><u>Integrated bin-lift-tipping-device 800 for bins with pinion pick-up and comb lift</u></b></p> <p>With this BLT bins with pinion and comb lift can be lifted, tipped and emptied. It is possible to tip bins with different comb heights. The BLT can be used to tip bins with a pinion height of 1260mm (according to DIN EN 840) or bins with a comb height of 980 to 1280 mm. The maximum load carrying capacity amounts to 700 kg. Due to safety reasons the operation of this device is to take place with both hands via a keypad.</p> <p><b><u>Please note:</u></b> <i>It is also possible to empty containers with a swing cover. However this only functions in combination with cover openers sales number 22000865 or sales number 22000870.</i></p>	<p>tip frame with chute</p> <p>two hydraulic cylinders</p> <p>electromagnetic valve</p> <p>operating keypad</p> <p>various electrical units</p>
<p>23000865</p>  	<p><b><u>Cover opener for wheele bin with machine with cover</u></b></p> <p>This mechanical cover opener is intended for the 1.1 m<sup>3</sup> wheelie bin with swing cover as according to the DIN 30700 regulation. This enables the container cover to be automatically opened and closed during the tipping process.</p>	<p>mechanical cover opener</p> <p>fastening chain</p> <p>painted in RAL 7016</p>

EDV-code	description	scope of delivery
<p>51882000, 51883000, 51884000, 51885000, 51886000, 51887000</p> 	<p><b><u>Guiding rails</u></b></p> <p>The guiding rails are suitable for centring roll-on roll-off container or compactors on a flat and solid ground as e.g. concrete. The ground will be protected from damages. The rails of container or compactor have to be min. 180mm high.</p> <p>Different lengths are available: 4.500mm, 5.300mm, 5.500mm, 6.000mm, 6.700mm, 7.200mm.</p> <p>The guiding rails are painted in RAL 7016 „antracite grey“.</p>	<p>Set of guiding rails</p>
<p>50000899</p> 	<p><b><u>Special paint</u></b></p> <p>The machine will be painted in any user-defined RAL colour.</p>	<p>RAL-tone</p>

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