



# Brextor



لوفتهانزا العالمية للمقاولات  
LUFTHANSA INTERNATIONAL CONSTRUCTION CO.

by **BRC** swiss

**World's fastest, most  
cost-efficient and precise  
pile breaking method**

# The Old Methods

## Manual Breaking



**Not Healthy**



**Hard to Access**



**Time Consuming**



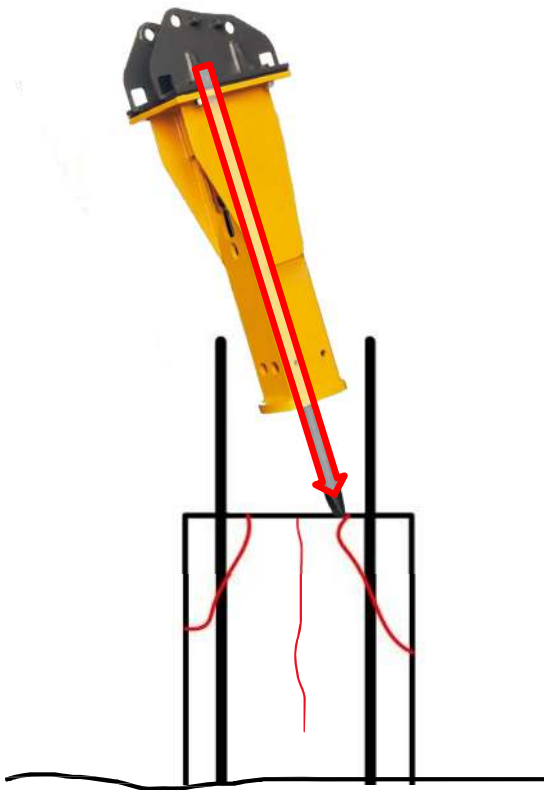
**Not Safe**



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# The Old Methods

## Hydraulic Breaker



**Cracks & Spallings**



**Bent / Tom Reinforcements**



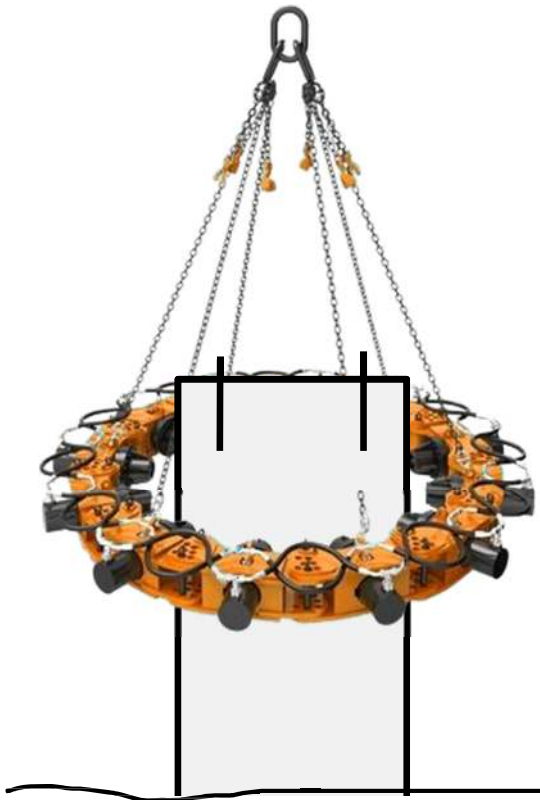
**Cut at Definitive Level**



**Labor Intensive Cleaning**

# The Old Methods

## Pile Breaker



**Much Work Space**



**No Use on Pile Walls**



**High  
Cleaning Effort**



**Additional  
Debonding Effort**



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# How it all started



Alois Portmann  
Inventor Brexlor®



2007 – Distribution Center Aldi – Switzerland, 7'600 piles, Ø 450mm



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LUFTHANSA INTERNATIONAL CONSTRUCTION CO.



Take It to the  
Next Level  
**Brextor**



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LUFTHANSA INTERNATIONAL CONSTRUCTION CO.



[Click to Watch Brextor  
in Action](#)

Also Available at: [www.brextor.com](http://www.brextor.com)

# Work Steps

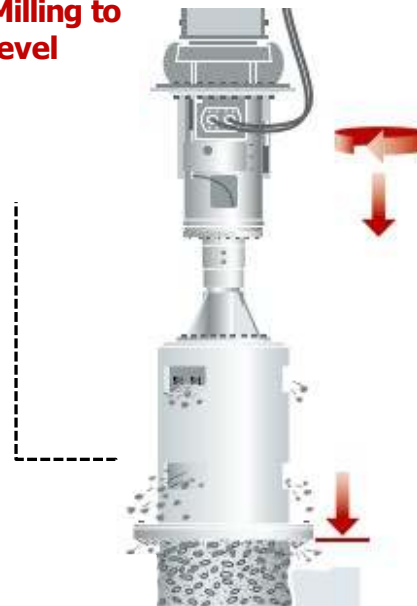
01

Preparation  
with Brexto  
Milling Disc



02

Milling to  
level



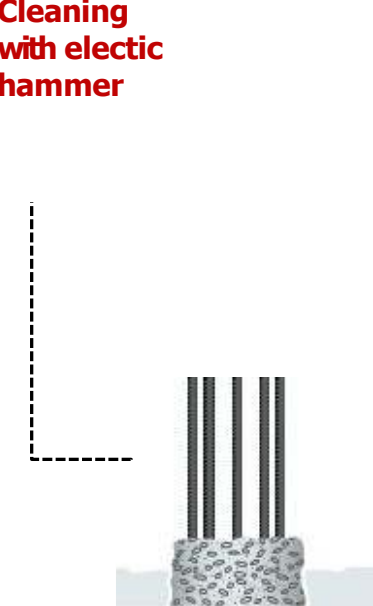
03

Breaking  
away the  
remaining  
concrete  
wall



04

Cleaning  
with electric  
hammer





# Performance



## Example

- Pile  $\varnothing$  = 1m
- Excavation height = 1m
- Use of 1 machine incl. auxiliary worker



- Machine work – 40min
- Daily output – approx 15 piles



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# Financial Benefits

## Increased Constuction Quality



No Cracks



No Spallings



# Financial Benefits

## Increased Constuction Quality



**No Bent Rebars**



**No Tom Rebars**



**Height Accuracy  
+/- 1cm**



# Financial Benefits

Lower Construction Cost



Reuse  
Demolition Material  
(80% gravel 0-30mm)



**36m<sup>3</sup>**  
(-12m<sup>3</sup>)

Less Workspace  
(Excavation /  
Replacement Material)



Transportation  
Savings



# Financial Benefits

## Shortened Constuction Time



Short Processing Time



Reliable Performance



Simple Planning



# Social Benefits

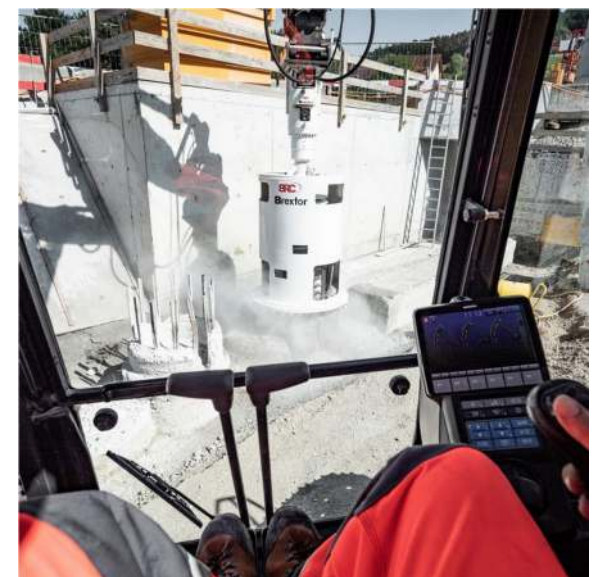
## Positive Social Outcomes



**Health-Friendly  
Work**

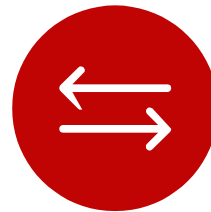


**Reduced Noise  
Emissions**



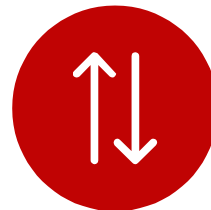
**High Occupational  
Safety**

# Processable Piles



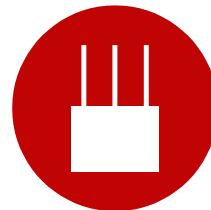
## Pile Diameter

400mm up to 2000mm  
(larger possible)



## Reinforcement Length

Standard 1.8m with extension 2.4m  
(Pile diameter < 700mm 1.6m)

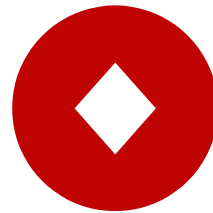


## Piles

Single piles & all kinds of pile walls  
(tangent, secant, contiguous)



# Consumables



## Consumption

Roughly 30 USD/m<sup>3</sup> for concrete quality C30  
Concrete quality C40: ca. +10%



## Change of Chisels

e.g. 1m diameter / removal height 1m  
Approx. 2-3 chisels every 2-3 piles - 1 min.





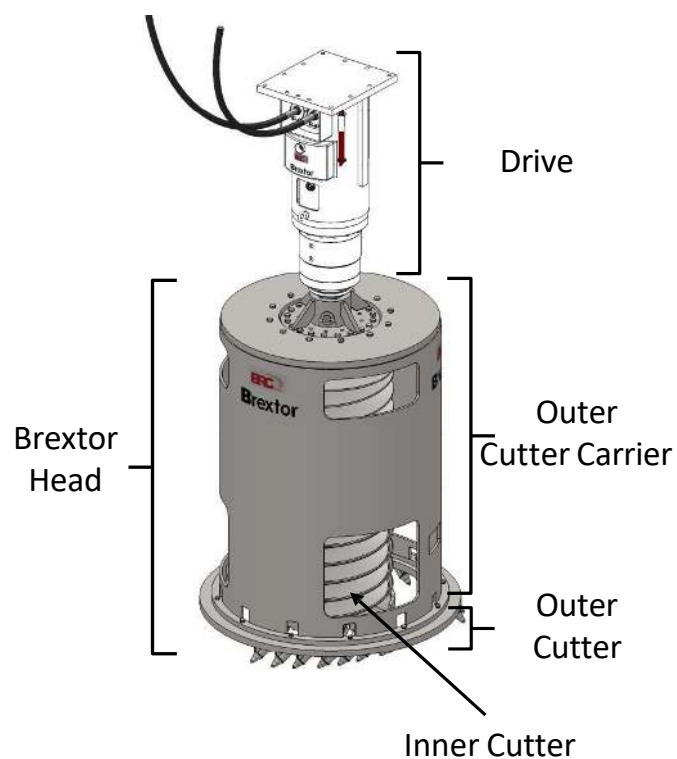
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# Excavator Requirements



<b>Pile Diameter</b>	<b>Excavator Requirement</b>
<b>Up to 1m</b>	<b>min. 16t Excavator</b>
<b>1m to 1.5m</b>	<b>min. 25t Excavator</b>
<b>1.5m to 1.8m</b>	<b>min. 30t Excavator</b>
<b>1.8m to 2.0m</b>	<b>min. 35t Excavator</b>

# Modularity



Pile	Outer Cutter Carrier	Outer Cutter	Inner Cutter
400mm	600mm	300mm	150mm
450mm			
500mm			
600mm			
700mm	1000mm	500mm	250mm
800mm			
900mm			
1000mm			
1200mm	1600mm	600mm	500mm
1300mm			
1500mm			
1800mm			
2000mm	2000mm	900mm	800mm
		1100mm	1400mm
		1200mm	
		1400mm	
		1700mm	
		1900mm	

Remaining pile wall must be between 150 & 300mm



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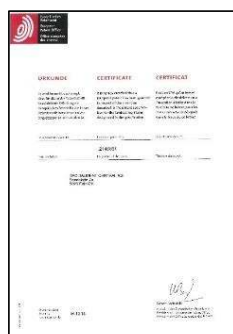
# Top Quality – Made in Switzerland



## Swiss Quality



## Worldwide Patented



## Worldwide Awards



SWISS  
INNOVATION  
CHALLENGE



European  
Commission  
Horizon 2020  
European Union funding  
for Research & Innovation



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# Pile Breaking with Brextor



## Your Project

Number of Piles [pcs.]	282
Pile Diameter [mm]	1300
Removal Height [mm]	800

## Your Savings with Brextor

Construction  
Costs  
**93,940 USD**

Construction  
Time  
**-3.8 Weeks**

Physical Work  
**-5,788 Hrs.**

Truck Trips  
**-74 Trips**

## Comparison (time & costs)

### Jack Hammer

Calculated with Processing time	12 people 11.7 Weeks
Pile breaking	100,693 USD
Demolition material	12,121 USD
Excavation	0 USD
Time	0 USD
<b>Total</b>	<b>112,815 USD</b>

### Brextor

Calculated with Processing time	2 people 8 Weeks
Pile breaking	41,810 USD
Demolition material	0 USD
Excavation	-7,735 USD
Time	-15,200 USD
<b>Total</b>	<b>18,874 USD</b>



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# References



Roche Tower – Switzerland  
148 piles, Ø 1200 & 1500mm



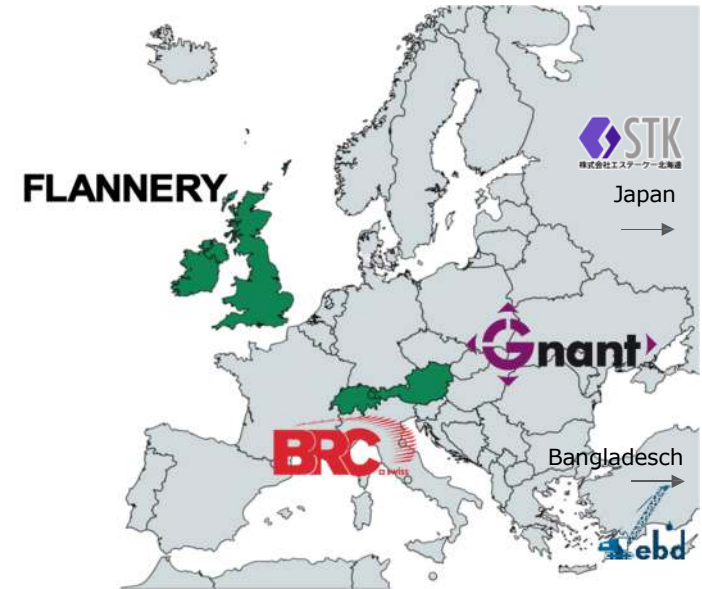
Lonza Lab – Switzerland  
562 piles, Ø 1200 & 1300



HS2 – United Kingdom  
Over 1'000 piles, Ø various



Shinkansen Bullet Train Line – Japan  
60 piles, Ø 1500





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# Next Steps



**Let us know  
Project Details**



**Receive Full Cost  
Comparison for your  
Project**



**Benefit from  
Brextor**

Fore more info visit us at:  
[www.brextor.com](http://www.brextor.com)

**START NOW →**



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# Brextor

## Any Questions?



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# Certificate of Authorization

**This is to certify**  
that

**Lufthansa International Construction Co**

Reg. Certificate No: 4030471108

Al-Rawdah Dist, Prince Muhammad Bin Abdulaziz,  
Jeddah, Saudi Arabia

**is hereby recognized as the  
Main Seller and Distributor**

for **Brextor®**

in the Kingdom of Saudi Arabia (KSA).

**Further Information:  
BRC Engineering AG**

Sandblatte 7a  
6026 Rain, Switzerland

BRC Engineering AG manufactures high-quality construction machinery, including the Brextor® pile head milling machine.

Lufthansa International Construction Co is a leading Saudi construction company focused on machinery rental and sales.

Both companies are establishing a Brextor Competence Center (BCC) in Saudi Arabia.

This certificate confirms the partnership between BRC and Lufthansa International to promote Brextor® in Saudi Arabia.

**Authorized Signatures:**

Roland Pfister  
CEO – BRC.swiss Group  
BRC Engineering AG

**Saudi Arabia:**  
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## Technical requirements Brextor®

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Rain, 2024/11/01

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## 1. Weight class excavator

PILE DIAMETER	EXCAVATOR REQUIREMENT
Up to 1.0m	Minimum 16t excavator
1.0m up to 1.5m	Minimum 25t excavator
1.5m up to 1.8m	Minimum 30t excavator
1.8m up to 2.0m	Minimum 36t excavator

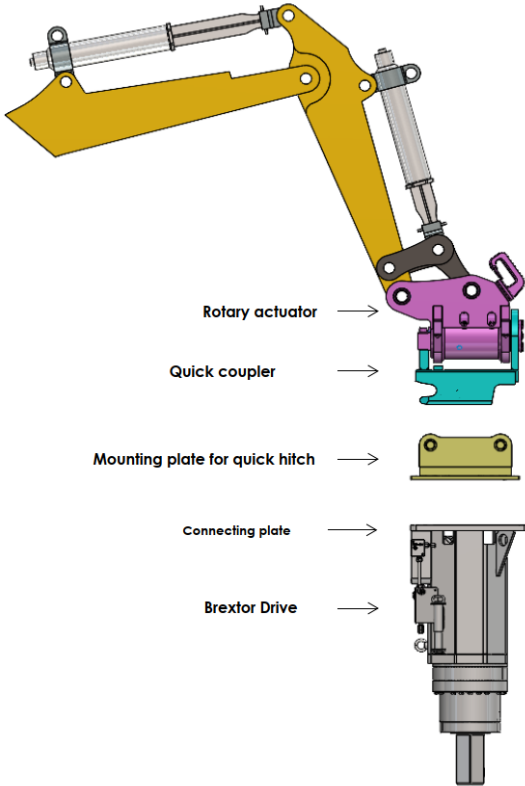
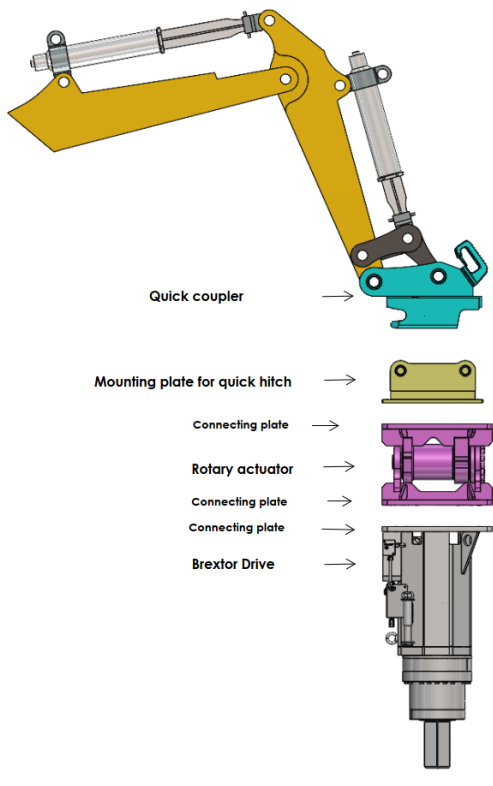
Please note that the above weight classes are only indicators.

The required volume flows and hydraulic pressures described in this document as well as the lifting capacity of the carrier are decisive for the use of Brexlor. These may vary depending on the brand, model and weight class.

Please carry out a volume flow and pressure test measurement or commission an expert to do so. To do this, fill out the "Brexlor volume flow and pressure test" form (see appendix of this document) and send it to your local Brexlor Competence Center for verification.

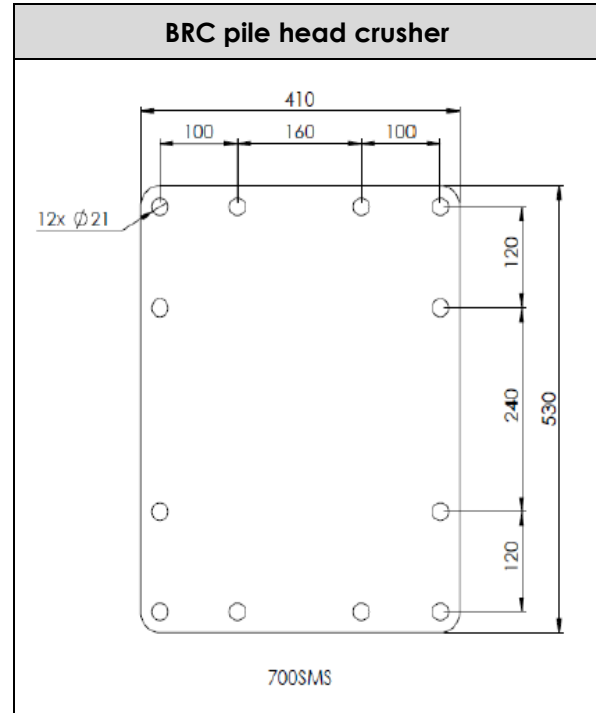
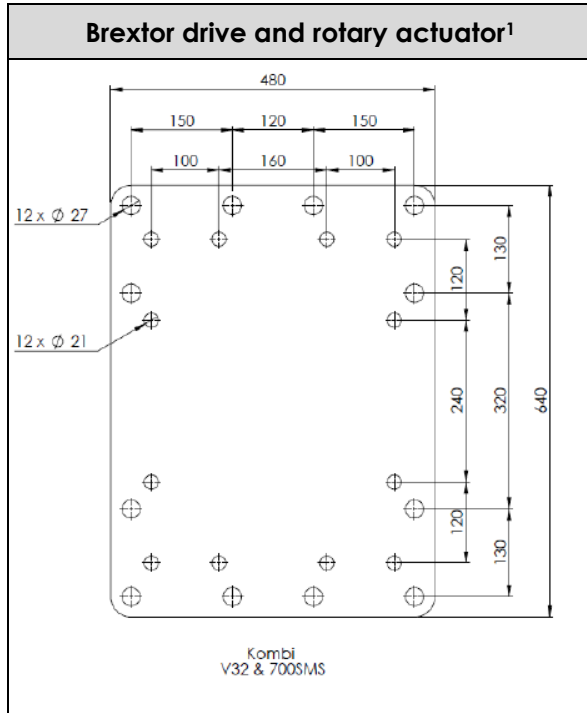
## 2. Mounting options rotary actuator<sup>1</sup>

In order to be able to mill vertically at any time, a rotary actuator<sup>1</sup> is absolutely necessary. The rotary actuator<sup>1</sup> can be mounted either directly on the carrier or on the Brextor drive. Both options and their advantages and disadvantages are shown below:

Option 1: set up on excavator	Option 2: set up on Brextor drive
<ul style="list-style-type: none"> <li>+ Swivel function can be used for all attachments / All attachments (e.g. BRC LC130 / bucket etc.) can also be swivelled</li> <li>+ Compact design</li> <li>- If a rotary actuator<sup>1</sup> is only installed on one excavator, only this excavator can be used for Brextor</li> </ul>	<ul style="list-style-type: none"> <li>+ Cost-effective(er) in acquisition</li> <li>- Unit Brextor drive and rotary actuator<sup>1</sup> is longer</li> <li>- BRC LC130 cannot be swivelled (is not mandatory - but helpful)</li> </ul>
	

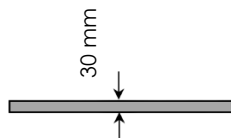
### 3. Hole pattern

The dimensions of the base plates shown below correspond to the size of the base plate installed on the respective attachment (Brextor drive, swivel drive, or BRC pile head crusher).

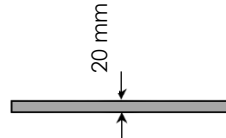


The material thicknesses of our base plates are as follows:

Brexlor drive and rotary actuator  
30 mm



BRC pile head crusher  
20 mm



The dimensions of the mounting plates, which are bolted to the respective attachment (Brexlor drive, slewing drive or BRC pile driver), must be adapted to the quick coupler installed on the carrier.

The mounting plates for the attachments are not included in the scope of delivery and are provided and fitted by the customer.

## 4. Hydraulics

### 4.1. Brexto drives

	BRC150-2		BRC250-2	
	p (bar)	Q (l/min)	p (bar)	Q (l/min)
Max. flow rate unloaded	<b>0</b>	<b>300</b>	<b>0</b>	<b>500</b>
Min. flow rate at 150 bar	<b>150</b>	<b>225</b>	<b>150</b>	<b>370</b>
Max. flow rate at max. pressure	<b>420</b>	<b>210</b>	<b>350</b>	<b>255</b>
Leakage oil line back pressure	<b>max 5.0</b>		<b>max 5.0</b>	

### 4.2. BRC pile head crusher

	BRC LC130	
	p (bar)	Q (l/min)
Max. pressure / flow rate rotating	<b>120</b>	<b>30</b>
Max. pressure / flow rate crushing/biting	<b>300</b>	<b>150</b>

### 4.3. Rotary actuator<sup>1</sup>

Option 2: set up on Brexto drive

	Rotary actuator <sup>1</sup>	
	p (bar)	Q (l/min)
Max. pressure / flow rate Swivel	<b>210</b>	<b>75</b>

## 5. Hydraulic lines (pipes)

### 5.1. Brextor drive

#### Forward/reverse flow rotation:

Screw connection	1 1/2" BSP-internal thread
Hose dimension (nominal size)	min. 1" (DN25)

#### Leakage oil:

Screw connection	3/8" BSP-internal thread
Hose dimension (nominal size)	min. 1/2" (DN12)

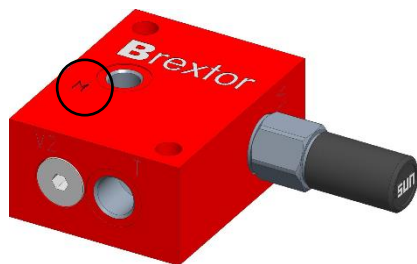
The leakage oil line from the carrier unit must be equipped with at least a nominal width of 1/2" (DN 12). The leakage oil line must be screwed directly or equipped with a safety coupling, e.g. Flat Star ASV 500 screw coupling.

The leakage oil line of the carrier device must be at least of nominal diameter 1/2" (DN12) and must be routed in this dimension over the entire boom (do not install any reducers) and connected to the hydraulic tank.

The leakage oil line must be screwed directly to the device or equipped with a safety coupling, e.g. Flat-Star ASV 500 screw coupling.

The maximum back pressure of the entire leakage oil line **must not exceed 5.0 bar**.

The back pressure of the leakage oil system can be adjusted on the Brextor valve block at connection 'M' (1/4" BSP thread) on the Brextor valve block during operation.



The leakage oil system is protected by the Brextor valve block, excess leakage oil (over 5.0 bar) is channelled into the leakage oil tank.

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## 5.2. BRC pile head crusher LC130

### Forward/reverse flow rotation:

Screw connection	min. 3/8" BSP- internal thread
Hose dimension (nominal size)	min. 1/2" (DN12)

### Forward/reverse flow crushing/biting:

Screw connection	3/4" BSP- internal thread
Hose dimension (nominal size)	min. 1" (DN25)

## 5.3. Rotary actuator<sup>1</sup>

Option 2: set up on Brexlor drive

### Hydraulic hoses inlet and return flow swivel:

Screw connection	1/4" BSP- internal thread
Hose dimension (nominal size)	min. 1/4" (DN 06)

## 5.4. Hydraulic oil

Unless otherwise stated, we assume that mineral oil is used. Otherwise, this must be discussed with the Brexlor Competence Centre in advance.

## 6. Scope of delivery

Mounting plates and hoses are not included in the scope of delivery. These are provided and fitted by the customer.

## 7. Control circuits

- Two pressure lines are required for each of the 1st, 2nd, 3rd and 4th auxiliary circuits
- A pressure less return line is necessary for the leakage oil line

### 7.1. Mechanical quick couplers

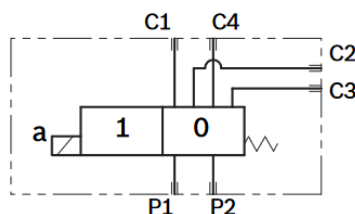
Rotary actuator <sup>1</sup> set up option 1: set up on excavator		
1. Auxiliary circuit	Brextor drive BRC Pile Head Crusher LC130	turn open/close
2. Auxiliary circuit	rotary actuator <sup>1</sup>	swivel
3. Auxiliary circuit	BRC Pile Head Crusher LC130	turn
Leakage oil line	for Brextor drive	
Rotary actuator <sup>1</sup> set up option 2: set up on Brextor drive		
1. Auxiliary circuit	Brextor drive BRC Pile Head Crusher LC130	turn open/close
2. Auxiliary circuit	BRC Pile Head Crusher LC130 rotary actuator <sup>1</sup>	turn swivel
Leakage oil line	for Brextor drive	

### 7.2. Hydraulic quick couplers

Rotary actuator <sup>1</sup> set up option 1: set up on excavator		
1. Auxiliary circuit	Brextor drive BRC Pile Head Crusher LC130	turn open/close
2. Auxiliary circuit	rotary actuator <sup>1</sup>	swivel
3. Auxiliary circuit	BRC Pile Head Crusher LC130	turn
4. Auxiliary circuit	Quick coupler	open/close
Leakage oil line	for Brextor drive	
Rotary actuator <sup>1</sup> set up option 2: set up on Brextor drive		
1. Auxiliary circuit	Brextor drive BRC Pile Head Crusher LC130	turn open/close
2. Auxiliary circuit	BRC Pile Head Crusher LC130	turn
3. Auxiliary circuit	Quick coupler	open/close
Leakage oil line	for Brextor drive	

### 7.3. Upgrade second auxiliary circuit

With the valve shown below (or similar), the 2nd auxiliary circuit can be split to create a 3rd auxiliary circuit. The size of the valve may have to be customized to the size of the excavator. For example, VS311-VS312-VS315 from Bosch Rexroth.





## 8. Appendix: pressure and volume flow test

A volume flow and pressure test must be carried out beforehand to check whether the carrier device provides the necessary hydraulic power for the use of Brextor.

<b>Client</b>	
<b>Responsible person</b>	
<b>Excavator brand</b>	
<b>Excavator type</b>	
<b>Type of hydraulic oil</b>	<input type="checkbox"/> Mineral oil <input type="checkbox"/> Organic oil
<b>Date</b>	
<b>Filled out by</b>	

Forward pressure (bar)	Return flow pressure (bar)	Volume flow rate (l/min)	Pressure leakage oil line (bar)
0			
50			
100			
110			
120			
130			
140			
150			
160			
170			
180			
190			
200			
250			
300			
350			
400			
450			

The defined Brextor drive must fulfil the conditions of the "Brextor technical requirements" documentation, point 4.1 If these are not met, all warranty claims will be cancelled. All carrier devices with which the defined drive is operated must also be set in accordance with point 4.1 of the "Brextor technical requirements" documentation.

Please return the completed document to your local Brextor Competence Centre.

1A rotary actuator is a type of actuator, that can only rotate left or right over an angle of maximum 300°. Part-turn actuators are much smaller than cylinders and do not have any external moving parts.

Well known brands: PowerTilt / Xtra Tilt



# معلومات التواصل

## نتطلع لخدمتكم

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المملكة العربية السعودية 



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**BRC**  swiss