



Attachments for Construction Machines
XTRATILT ROTOBOX TILTROTATOR



### The Best for Every Challenge

#### NO LIMITS TO INDIVIDUALITY

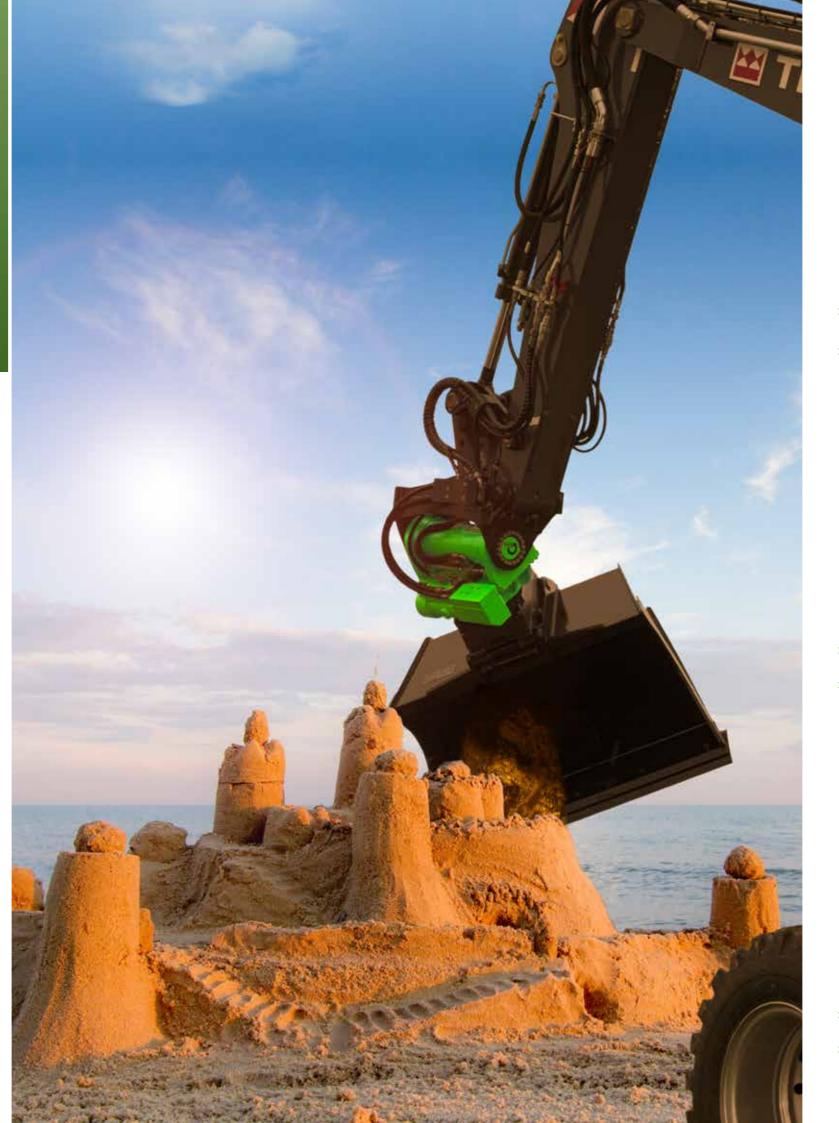
Each application is different and requires different tools as well. For this purpose, HKS has the largest market range of turning and swiveling tools, which ideally covers every application. Whether only simple pivoting or rotating, or both at once.

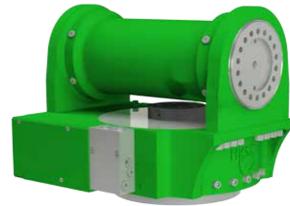
We develop, design and produce according to your ideas and thus achieve the best for you and your excavator.

Our design team adapts each product individually to your excavator, so the kinematics remain in the best possible way and the volume of each bucket can be utilized maximally.

Convince yourself of our solutions, likewise as well directly on site.

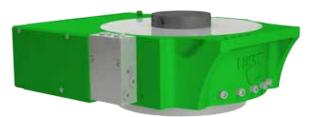
Trust in HKS with over 45 years experience in the field of hydraulic and pneumatic rotary actuators and fifteen years of successful products for the Construction Technology segment.





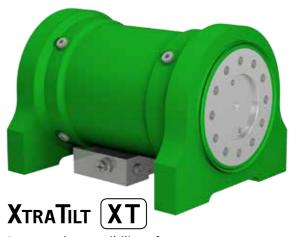
#### TILTROTATOR TR

- Best possible accessibility of operating positions thanks to simultaneous tilting and rotating
- > Spatial positioning enables previously impossible areas of application for your attachments



#### RotoBox RB

- > Improved accessibility of operating positions due to endless rotation
- > Immediate changeover from backhoe to face bucket by means of simple rotation



- > Improved accessibility of operating positions by tilting
- > Easy handling of works on embankments

TILTROTATOR TR







Combination

With adapter to dipperstick connection and quick coupler



Sandwich-Solution

With quick-coupler adapter and quick coupler

Made to Measure for loads of **Applications** 











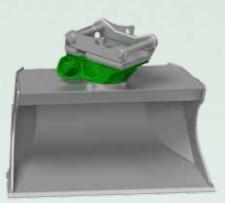
Combination

With adapter to dipperstick connection and quick coupler



Sandwich-Solution

With quick-coupler adapter and quick coupler



**Direct-Connection** 

For connecting directly to the bucket

Discover the broad diversity of **HKS** Construction Technology products, and use them to boost your productivity.









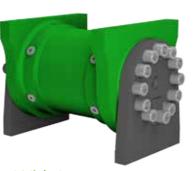












With Lugs

With lugs for direct connection. Oil feedthrough an optional extra.



Combination

With permanent shaft connection and quick coupler



Sandwich-Solution

With quick-coupler adapter and quick coupler



Direct-Connection

For connecting directly to the bucket



### Variations over Combinations

Alternative:

Welded connection from adapter to dipperstick connection and XtraTilt for a more compact overall height.



#### All facts at a glance:

- › Adapter board compatible with all quick couplers
- > Dipperstick connection individually adapted for all carrier devices
- > Can be used on all attachments

L = lugs C = combination (adapter to dipperstick connection/quick coupler adapter and quick coupler)

	XtraTilt	XtraTilt L-version	XtraTilt K-version	RотоВох	RотоВох K-version	TiltRotator	TiltRotator K-version
	As a stand-alone device	With lugs for direct connection to the bucket	With adapter to dip- perstick connection adapter and quick and quick coupler coupler	As a stand-alone device	With adapter to dip- perstick connection and quick coupler  With quick-coupler adapter and quick coupler	As a stand-alone device	With adapter to dipperstick connection and quick coupler adapter and quick coupler
Adapter to dipperstick connection (optional) Compatible with all excavators up to 100 t Also available as a welded version or with a quick coupler adapter							
HKS XtraTilt (VILIDER) 54 models in 18 sizes up to 100 t Tilt angle: 100°, 140° or 180° Holding torque of up to 165,000 Nm						Optimised XtraTilt BVC-R model Increased performance – lower overall height	Optimised XtraTilt BVC-R model Increased performance – lower overall height
Oil feedthrough (optional) two sizes - standard and XL Flow rate of up to 500 l/min 5 flow rate channels Optional power feedthrough							
HKS RotoBox In 7 sizes from 1 t to 55 t Torque of up to 12,000 Nm Up to 8 rotations/min (with adapter board)							
Quick coupler (optional) Compatible with all mechanical and hydraulic quick couplers							

Special solutions available on request. Just contact us.





- 2x55° simultaneous tilting and endless rotating
- A great solution to position and hold attachments in the working area of the machine space
- More efficient machine utilisation and therefore reduced costs with the TILTROTATOR

The TiltRotator enables you to tilt your attachment ±55° (on request even higher) in both directions and rotate endlessly at the same time. These two functions provide three-dimensional positioning easily and accurately, increasing your efficiency and productivity.

With its compact and robust tilt unit, the TiltRotator is an incomparable alternative to conventional wider cylinder variants, which are prone to faults. An optimised XtraTilt with extended torque and reduced overall height is used for the TiltRotator.

#### Details

- > Standard tilt angle of 2 x 55° (even higher on request)
- > Holding torque of up to 90,000 Nm
- > Torque of up to 43,000 Nm
- In 10 models for a carrier device weight of up to 55 t.
- > Up to 8 rotations per minute
- Modular system design





# Less Consumption More Performance

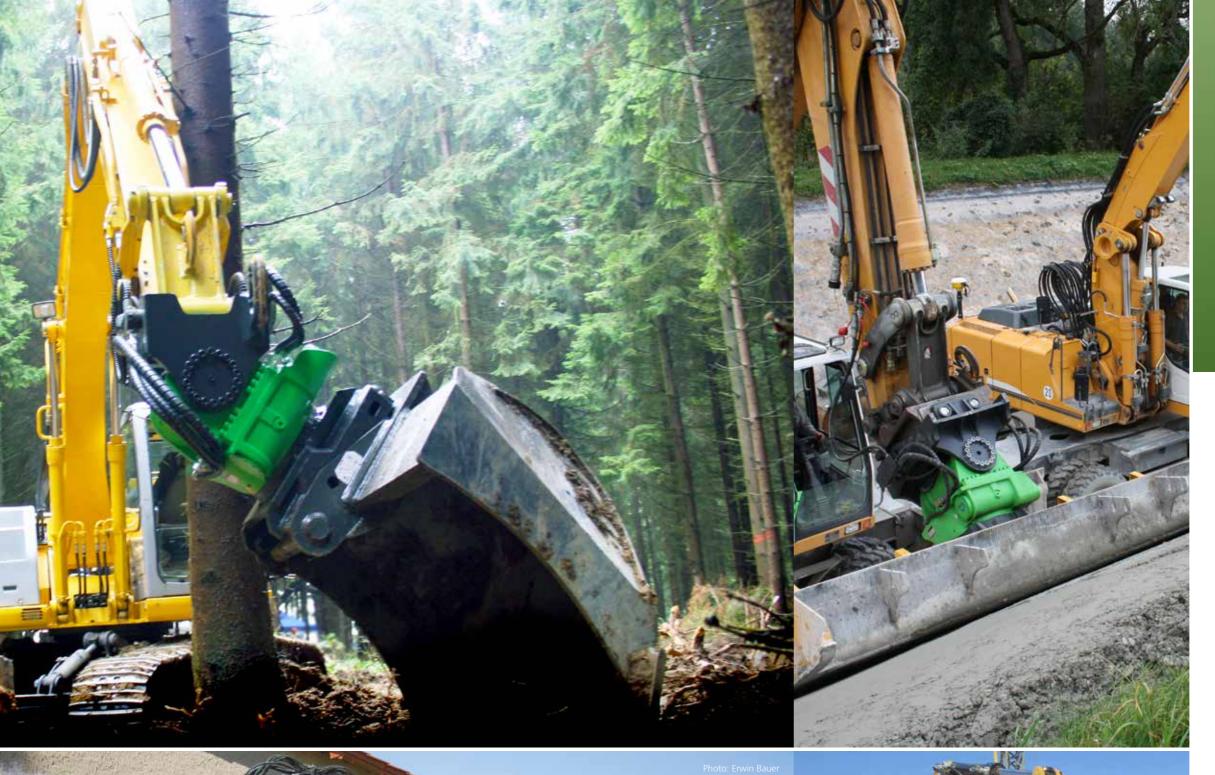
#### Your product advantages

#### More efficient machine utilisation rate

- Optimized working width and therefore narrower and lighter working tools can be attached, which decreases the entire weight and excavation
- > Extended radius of action in a stationary position
- Larger tilt angle
- Attachment mounting with quick coupler from any stationary position of the carrier device
- Increases the mobility of your attachments optimises their range of operation

#### **Reduces construction site costs**

- Less re-adjustment of the vehicles saves time and fuel, reduces wear and tear to the machine
- Fewer maintenance requirements and less lubrication reduce downtimes
- Increased machine utilisation rates of up to 40% shorten the amortisation period
- Easy retrofitting of existing machinery thanks to compatibility with all quick couplers and carrier devices
- Maximum accessibility and precise maintenance of the selected operating positions
- More orders can be completed during the same amount of time
- Indispensable for gardening and landscaping, drainage channel construction and civil engineering





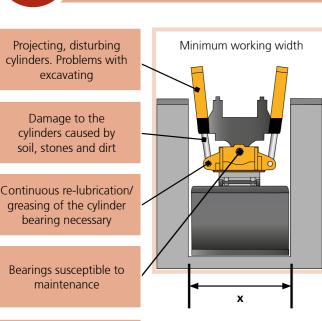


# Exact Positioning without Expenditure





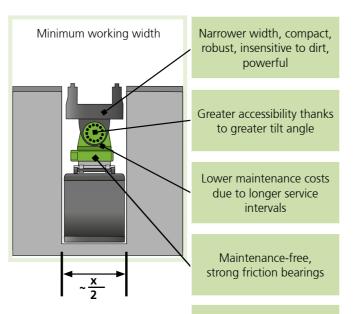
#### Conventional models



Restricted tilt angle and angle-dependent tilt torque

#### HKS TILTROTATOR

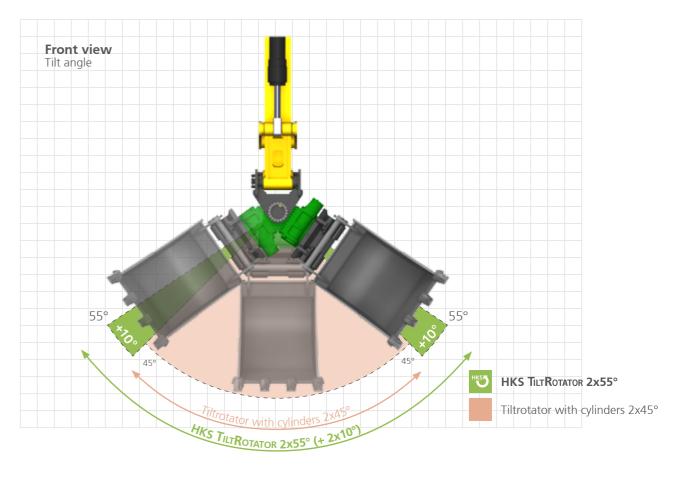


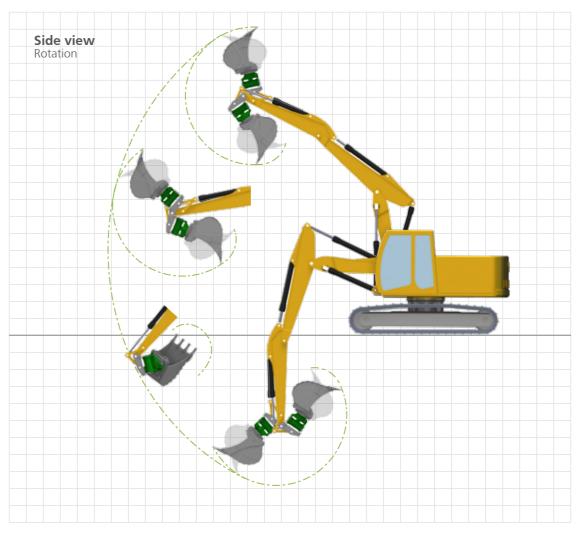


Constant tilt torque, regardless of tilt angle

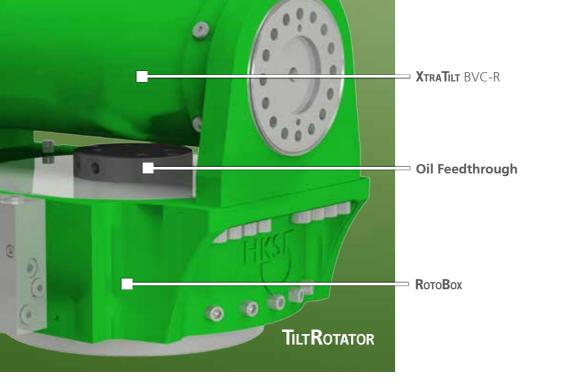
Simplified representation

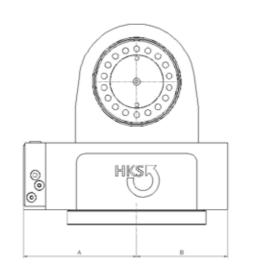
#### Accessibility of operating positions

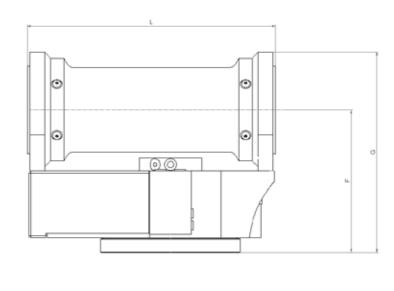




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	-		-		new			eW	0		new			
TILTROTATOR	TR	20	TR	35	TR	60		TR 90		TR 120				
Excavator class (t)	2,0	- 2,5	2,4	- 3,5	3 -	- 6		5,5 - 9		8 - 12				
Oil feedthrough version	-	Standard	-	Standard	-	Standard	-	Standard	XL	-	Standard	XL		
Flow rate of oil feedthrough system at pressure differential ∆p = 10 bar (HLP 46 30 °C)* [I/min]	-	42	-	42	-	52	-	52	130	-	52	130		
Allocated RoтoBox	RB	30	RB	30	RB	60		RB 120			RB 120			
Weight RотоBox excluding rotary feedthrough [kg]	ab	40	ab	40	ab	78		ab 110			ab 110			
Permitted axial load max. [N]	95.	000	95.	000	100	.000		160.000			160.000			
Permitted radial load max [N]		000		000		000		140.000		140.000				
Torque @ 175 bar [Nm]		10		10		350	- <del></del>	3.500		3.500				
U/min @ l/min at max. 175 bar	8 @ 2	8 l/min	8@2	8 l/min	8 @ 28	3 l/min		8 @ 45 l/mi	n	8 @ 45 l/min				
Allocated BVC-R	BVC-	-R 90	BVC-	R 100	BVC-	R 110		BVC-R 13	30		BVC-R 14	0		
Tilt angle	11	10°	1	10°	11	0°		110°		110°				
Amount of oil required per 6 sec. tilt time	3 1/	min	5 1/	min 'min	7 1/1	min		15 l/mir	1	21 l/min				
Displacement [dm³]	0,2	288	0,4	413	0,	63		1,44			2,03			
Torque @ 210 bar [Nm]	1.7	'00	2.6	500	35	00		8500			10000			
Holding moment @ 210 bar [Nm]	5.0	000	7.5	500	110	000		20000			22000			
Weight [kg]	2	7	3	35	5	8		80			99			
Dimensions														
A [mm]	1.	76	1	76	20	00		251			251			
B [mm]	1	12	1	12	14	45		180			180			
F [mm]	193 223		198	228	222	254	264	294	307	266	296	309		
G [mm]	263 293		273	303	307	339	378	401	414	378 408				
L [mm]	30	01	353		48	34		480		540				
Total weight TR excluding rotary feedthrough [kg]	from 67	from 89	from 75	from 97	from 135	from 171	from 190	from 221	from 262	from 209	from 240	from 280		

T	new TR 150			new TR 200			new TR 270		neW TR 400
	11 - 15			14 - 20			19 - 27		24 - 33
-	Standard	XL	-	Standard	XL	-	Standard	XL	
-	52	160	-	52	160	-	52	200	on request
	RB 200			RB 200			RB 270		RB 400
	ab 159			ab 159			ab 260		
	210.000			210.000			400.000	***************************************	on request
	180.000			180.000			250.000		red
	4.700			4.700			8.000		O
	6 @ 45 l/min			6 @ 45 l/min			6 @ 55l/min	-	
(mc	BVC-R 140 ore powerful ver	rsion)		BVC-R 160			BVC-R 200		
	110°			110°			110°		
	21 l/min			26 l/min			44 l/min		on request
	2,08			2,53			4,32		. rec
	10500			15000			21000		ō 
	28000			38000			52000		
	122			145			204		
	268			268			292	***************************************	
	215			215			280		
296	328	340	305	337	349	333	335	391	lest
415	447	459	441	473	485	476	478	534	on request
	585			585			726		0
from 281	from 319	from 390	from 304	from 342	from 410	from 464	from 518	from 654	
*) The n	roccura loccoc in	dicated were as	cortained in the	flow of the rotan	, feedthrough in a	one direction Pro	cerra loccae carre	nd by attachment	c

TR 550

500

RB 550

on request

Deliveries and services are exclusively based on our Terms and Conditions.

Exact values are indicated in the technical drawings or the operating manual for your individual actuator..

<sup>\*)</sup> The pressure losses indicated were ascertained in the flow of the rotary feedthrough in one direction. Pressure losses caused by attachments such as screw connections or hoses have not been taken into account.





## RoтoBox -Work Efficiency

- Continuous rotating in both directions
- The **RotoBox** is a great solution to position and hold attachments
- > Even more freedom of mobility due to an extended radius of action
- **)** Use of narrower working devices possible through the new, narrower width of the **RotoBox**

Extend your action radius to 360° with the RotoBox. This enables more flexible operation in a stationary position and additional fields of operation. Hydraulic tools requiring a large amount of oil can also be optimally used with the optional HKS oil feedthrough. Together with our sales experts, you will find the RotoBox that suits your specific applications.

#### Details

- Torque of up to 12,000 Nm
- > Up to 8 rotations per minute
- Operating pressure of up to 175 bar
- In 7 sizes for a carrier device weight of up to 55 t



### RotoBox -New Generation



#### New generation of the RotoBox

The new generation of the RotoBox is based on a completely new design. The focus was saving on height and weight while maximizing durability. The width has also been enhanced to allow the installation of narrower and therefore lighter attachments.

The two oil feedthrough units with up to 500l/min flow provide even more flexibility. Depending on the application, you can choose amongst our standard version to save weight and fuel, or the XL version of oil feedthrough for the more powerful version.

#### Your product advantages

- Precise operation: exact maintenance of the selected position, thanks to low-backlash gears and precise holding torques
- Great flexibility: compatible with all quick couplers and carrier devices and with the new narrower width enables to attach narrower working devices.
- Faster operation: thanks to an endlessly rotating 360° action radius, your attachments achieve considerably more operating positions. For instance, by rotating the bucket a backhoe bucket can quickly be turned into a face bucket.
- Long service life: thanks to high-strength steel casting and a worm gear drive filled in grease, downtimes are minimised, and a high utilisation rate of your machine is guaranteed.
- Durability: protection against wear and tear and rust, thanks to special manufacturing methods that give the robust steel casting the utmost accuracy of shape.
- Cost savings: no additional rotator required for hydraulic tools.

#### Your product advantages in details

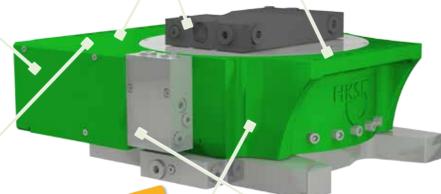


Housing made of high-strength steel castings. Saves weight and ensures high durability.



new

Instead of the threaded blind in the housing, passageway-drillings are utilized. Assembly and disassembly of rotary actuators and other possible attachments is enormeously facilitated through that.



By

By changing the mounting of the worm wheel, the height could be reduced and with that as well the weight.

A worm wheel made out of bronze ensures greater durability and power.

The RotoBox is equipped with flow-control and pressure relief valves, so that a pressure reduction at the excavator hydraulics is obsolete.

new

For the RB 60 and RB 120 the hydraulic motor was built in the axial direction and thus the width was reduced, which makes it possible to use even narrower attachments.

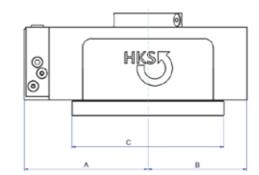


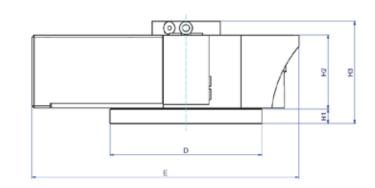


# Optimized Design Powerful Technics

Our experienced staff will gladly help you select the right rotary drive. Contact us at:

**+ + 49 6053 6163-0** 





		30	new			new			new	1		new	· stare	new	
RотоBox	R	B 30	RE	3 60		RB 120			RB 200			RB 270		RB 400	RB 550
Excavator class (t)		- 3,5	3	- 6		5 - 12			11 - 20			19 - 27		26 - 33	32 - 55
Oil feedthrough version	-	Standard	-	Standard	-	Standard	XL	-	Standard	XL	-	Standard	XL		
Flow rate of oil feedthrough system at pressure difference $\Delta p = 10$ bar (HLP 46 30 °C)*	-	42 [l/min]	-	52 [l/min]	-	52 [l/min]	130 [l/min]	-	52 [l/min]	160 [l/min]	-	52 [l/min]	200 [l/min]	on request	500 [l/min]
Weight of RotoBox excluding rotary feedthrough [kg]	fro	om 40	fro	m 78		from 110			from 159			from 260			~800
Permitted axial load max. [N]	95	5.000	100	0.000		160.000			210.000			400.000			850.000
Permitted radial load max [N]	48	3.000	95	.000		140.000			180.000			250.000		on request	500.000
Torque @ 175 bar [Nm]		810		350		3.500			4.700			8.000			12.000
U/min @ I/min at max. 175 bar	8@	28 l/min	8@2	28 l/min		8 @ 45 l/min			6 @ 45 l/mi	n	_	6 @ 55 l/mir	1		5 @ 82 l/min
Dimensions A [mm]		176		000		251			268		-	292	-		355
B [mm]		112	1	45		180			215			280			300
C [mm]		255		90	2	165	400		330	490		380	600		880
D [mm]		290	2	175	2	165	360		330	490		380	500		600
E [mm]		425	4	81		530			580	580		721		on request	320
H1 [mm]		30		32		30	43		32	44		2	56		400
H2 [mm]		106	1	29		151		165				185			400
H3 [mm]	146	172	188	198	201	206	231	197	222	251		-			

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Exact values are indicated in the technical drawings or the operating manual for your individual actuator.

\*) The pressure losses indicated were ascertained in the flow of the rotary feedthrough in one direction. Pressure losses caused by attachments such as screw connections or hoses have not been taken into account. All mentioned weights without quick coupler, permanent shaft connection, adapter flange, cover and screw package.



## Maximum in Performance





#### HKS OIL FEEDTHROUGH

#### Details

- > 2 versions eligible (standard + XL)
- > 5 channels with up to 500l/min
- Optional power rotary feedthrough
- > Up to 350 bar operating pressure

With the extra large HKS oil feedthrough, connected hydraulic tools are supplied with a flow rate of up to 500l/min oil (pressure difference  $\Delta p = 10$  bar, (HLP 46 30 °C)).

Only the HKS oil feedthrough can get the flow rate supplied by your carrier device to your attachment at the lowest pressure difference. This feature enables your tools to operate at full capacity.

Don't make compromises – put your trust in HKS products.

The unique design and special manufacturing process allow for particularly large channels for greater passage and a low efficiency loss rate. The individual flow rates can be flexibly distributed using multiple connectors. The piping can therefore be optimally adjusted and implemented to suit your carrier device

With 5 oil channels available (2 for quick coupler, 2 for work unit, 1 for drain line) and a current power rotary feedthrough.

Special solutions for 3, 6 or 7 channels and more on request!

#### Product advantages

- Maximum capacity for your hydraulic attachments
- Wear-resistant, high-quality components
- Your attachment has an operating pressure of up to 350 bar
- Up to 500 l/min flow rate and extremely low pressure differential
- Optimum adjustment to any quick coupler
- Electric feedthrough with up to 12 connections of 2 amperes each
- Available for the excavator class of 5-27t optional with standard version or extra large (XL) oil rotary feedthrough



#### Standard oil feedthrough

- WEIGHT SAVING!
- Low weight with extremely effective delivery of up to 52 l/ min
- Compatible with the new RotoBox
- › Already available for mini-excavators as from 1t
- Minimum back pressure with viscous hydraulic oil HLP 46 at 30 ° C

		new	new	new	new
Oil feedthrough for RотоBox	RB 30	RB 60	RB 120	RB 200	RB 270
Excavator class (t)	1 - 3,5	3 - 6	5 - 12	11 - 20	19 - 27
Weight [kg]	7,5	13	10,5	10,5	10,5
Flow rate of oil feedthrough system at pressure difference $\Delta p = 10$ bar (HLP 46 30 °C)*	42 [l/min]	52 [l/min]	52 [l/min]	52 [l/min]	52 [l/min]



#### XtraLarge oil feedthrough (XL)

- Compatible with the new RotoBox
- Incredible delivery for powerful work assignments available from excavators as from 5t
- Minimum back pressure with viscous hydraulic oil HLP 46 at 30 °C

	new	new	new	new	
Oil feedthrough for RотоBox	RB 120	RB 200	RB 270	RB 400	RB 550
Excavator class (t)	5 - 12	11 - 20	19 - 27	26 - 33	32 - 55
Weight [kg]	22,9	35,5	57,2	auf Anfrage	245
Flow rate of oil feedthrough system at pressure difference $\Delta p = 10$ bar (HLP 46 30 °C)*	130 [l/min]	160 [l/min]	200 [l/min]	auf Anfrage	500 [l/min]

<sup>\*)</sup> The pressure losses indicated were ascertained in the flow of the rotary feedthrough in one direction. Pressure losses caused by attachments such as screw connections or hoses have not been taken into account.

All mentioned weights are excluding adapter flange, cover and screw package.





# XTRATILT Maintenance-free in Every Version

- Tilt up to 2 x 90°
- The XTRATILT is a great solution to position and hold attachments
- An additional movement axis for greater versatility and flexibility

Many years of experience and innovation have made the XtraTilt even more robust, reliable and durable.

Thanks to the special deflectors on both sides, dirt is prevented from entering the housing of the XtraTilt range, making it free from daily-maintenance from the day it leaves the factory. This feature considerably reduces maintenance costs. Together with our sales experts, you will find the XtraTilt that suits your specific applications.

#### Details

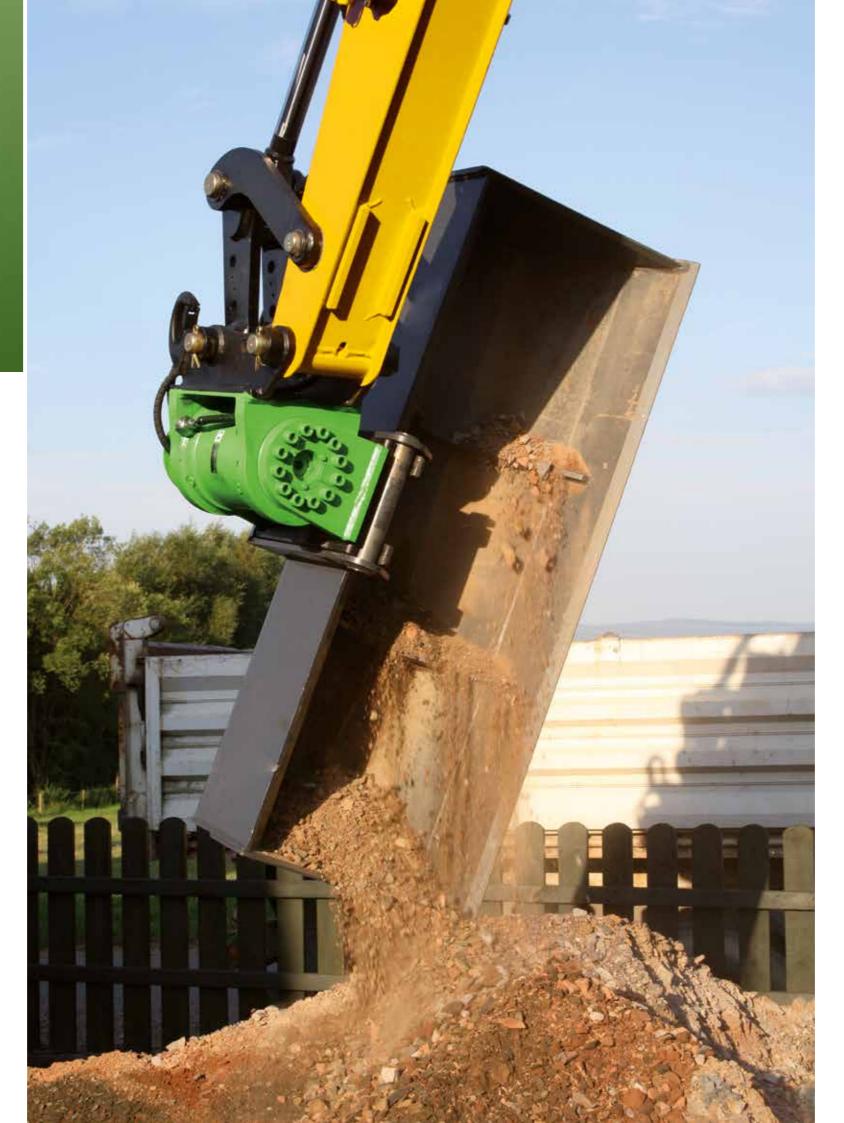
- > Standard rotating angles: 100°/140°/180°
- > Holding torque of up to 165,000 Nm
- Operating pressure of up to 250 bar
- 54 models for 18 sizes for a carrier device weight of up to 100 t
- > Further tilting weights available upon request

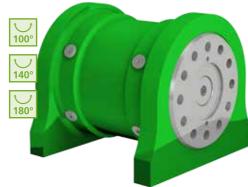


### Progress by Longevity

#### Your product advantages

- **Maintenance-free operation**, since there is no need for re-lubrication and readjustment.
- **Unlimited flexibility:** compatible with all quick couplers and carrier devices.
- Less material excavation: narrower attachment tools can be used, considerably reducing the working width.
- More precise operation: high holding torques and precise manufacture ensure the exact maintenance of the selected position.
- **Constant torque/holding torque:** regardless of the operating angle.
- Durability: protection against wear, tear and rust thanks to special manufacturing, annealing and hardening processes which give the robust welded housings the utmost accuracy of shape.





BVC 1-11t

- Long-term quality in the use of tilt buckets for excavator classes up to 11 t.
- › Available tilt angles of 100°, 140° and 180°



BVE 10-100t

- Operating pressure of up to 250 bar (alternative: 190 bar for tilt angle of 100°)
- Designed for biologically degradable media (dual seals)
- Reinforced shaft



BVD 1-10t

#### Compared to the BVC at the same output:

- Lower space requirement
- > Ideal fit for all commercially available quick couplers
- Regardless of the excavator hydraulics, thanks to directly connected load-holding valve
- Only available with a tilt angle of 180°

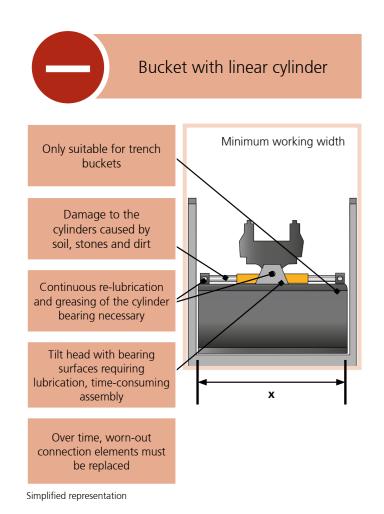


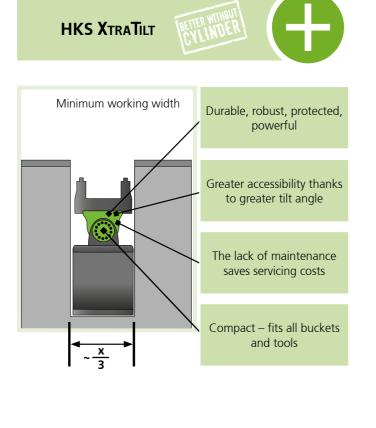
# Important Differences in Detail

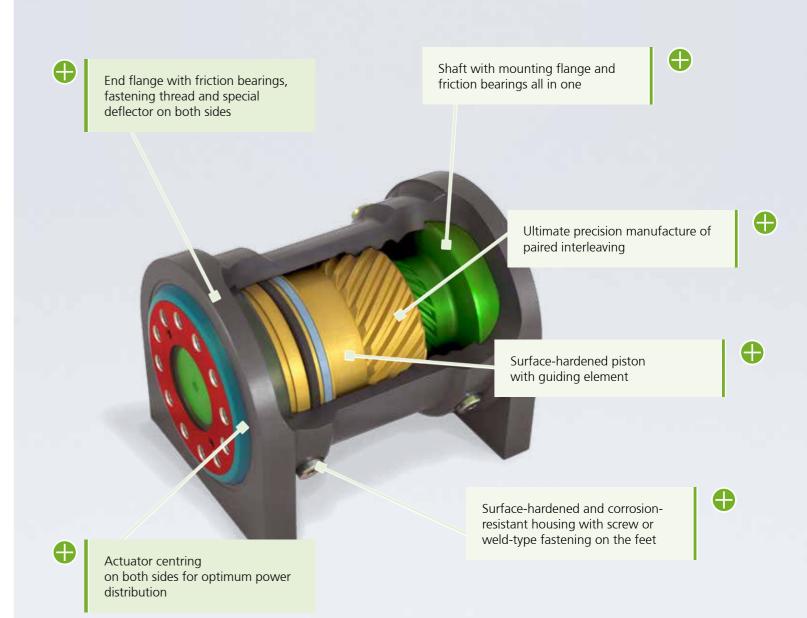
#### Built for harsh everyday applications

The compact 4-part construction of high quality materials and precise manufacturing make the XtraTilt to the most robust rotary drive of its class.

### Built for Long-Term Use



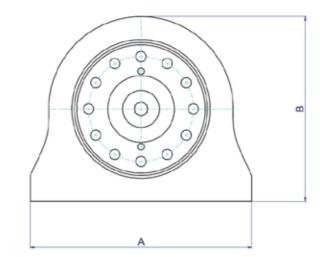


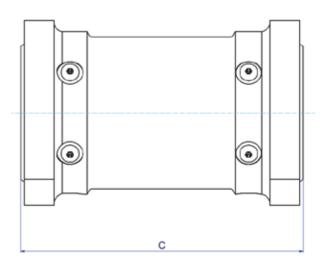




## Convincing Performance

Our experienced staff will gladly help you select the right rotary drive. Contact us at: ▶ +49 6053 6163-0





XTRATILT Size	1(	00			115					125*			130			140*			160			180		2	25*						
Excavator class (t)		< 1,8 1,8-3,8					3-5,5			4-6,8			5-7,5 7-9					8,5-11		1(	0-13										
XtraTilt BV-Series		C		F¹		С		D	F¹		С		D		С		D	F¹		С			C		D	F¹		С			E
Holding torque [Nm]		2.480		2.400		4.300		4.300	6.400		7.800		8.200		10.000		on request	12.800		10.900			17.500		17.500	20.000		19.500			36.700
Operating pressure [bar]		190		210		190		210	210		190	)	210		190		on re	210		190			190		210	210		190	)		250
Tilt angle	100°	140°	180°	180°	100°	140°	180°	178°	180°	100°	140°	180°	178°	100°	140°	180°	178°	180°	100°	140°	180°	100°	140°	180°	178°	178°	100°	140°	180°	100°	140°
Displacement [dm³]	0,18	0,25	0,323	967'0	0,284	668'0	0,513	0,527	0,617	0,385	0,538	0,693	0,84	0,58	0,813	1,045	1,06	1,062	969'0	0,974	1,253	1,147	1,606	2,064	1,91	1,94	1,421	1,989	2,557	 1,498	2,098
Weight [kg]	19	21	22	48	42	47	52	43	38	51	27	62	61	29	64	70	88	112	85	94	103	87	92	104	113	181	121	135	149	166	188
A [mm]		150		190		220		220	190		220	)	224		270		300	280		300			300		290	284		332		3	390
B [mm]		152		233		187		192	208		212	)	232		227		266	328		250			266		273	373		290	)	=	327
C [mm]	197	221	245	281	264	306	344	275	259	267	305	345	275	267	305	345	275	398	291	337	383	291	337	383	360	454	319	371	423	350	404

Ź	225*	f		24	40			25	50			260			270			290			300		35	50	40	0*	42	0*	450*
1	0-13	3		12	-16			15-	-23		Ź	22-26	6	Ź	25-29	9	2	28-3	4	2	28-3	8	37-	-50	48	-60	58-	-70	68-100
	E			E		F <sup>1</sup>		E		F¹		E			Е			Е			E		E	=	[	E	E		Е
	36.700			40.000		34.000		47.300		40.000		53.000			63.000		80.000	on request	on request		90.000		000	100.000	7	140.000	1000	165.000	
	250			250		210		250		210		250			250		250	ว นอ	on r		250		750	0c7	C	750	750	067	
100°	140°	180°	100°	140°	180°	140°	100°	140°	180°	120°	100°	140°	180°	100°	140°	180°	100°	140°	140°	100°	140°	180°	100°	140°	100°	140°	100°	140°	
1,498	2,098	3,0	1,851	2,591	3,331	2,97	1,777	2,486	3,197	3,02	3,29	3,519	4,525	3,765	4,115	5,29	4,239			5,742	6,277		696'2	8,479	9,512	13,326	10,884	15,238	on request
166	188	207	182	186	206	569	202	236	264	321	569	301	344	334	374	414	365	st	st	555	622	st	969	260	1.240	1.426	1.403	1.655	o
	390			390		400		412		410		450			492		490	on request	on request	57	70	on request	60	)8	76	50	80	00	
	327			328		370		353		387		380			400		400			47	78		51	15	62	20	68	30	
350	404	455	354	412	470	510	368	430	492	538	420	482	548	460	534	809	534			540	612		292	641	675	800	707	835	

Further sizes and tilt angles available on request • vertrieb@hks-partner.com All weights exclude quick coupler and adapter to dipperstick connection.

Deliveries and services are exclusively based on our Terms and Conditions. Exact values are indicated in the technical drawings or the operating manual for your individual actuator..

F<sup>1</sup>) Weight and dimensions are including lugs.

<sup>\*)</sup> Manufacture on request

## Sandwich - the Solution

The HKS sandwich solution enables an HKS TiltRotator to be equipped with a quick coupler instead of a fixed adapter to dipperstick connection, for instance, which means that the excavator driver can use the HKS TiltRotator like a standard attachment. The lower quick coupler is still responsible for the change-over of attachments.

**FLEET MANAGEMENT.** The HKS product can be used for your entire fleet.

**ATTACHMENTS.** Existing attachments can still be used without the need for conversion. At the same time, all attachments can be combined with the HKS product for all carrier devices.

**INDEPENDENCE.** Decoupled by means of a sandwich solution, a carrier can be utilized without TiltRotator / RotoBox / XtraTilt – and therefore be used any time for personnel who are not experienced with an HKS product.

**NO TEAR-OUT FORCE LOSSES.** The HKS product can be removed if necessary, and the carrier device works at full power upon start-up.

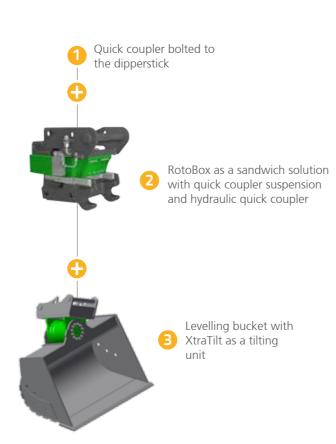
**WEIGHT REDUCTION.** Should the lifting load be too high for the carrier device, the HKS product can be decoupled for this extreme application.

**QUICK COUPLER.** Both mechanical and fully hydraulic quick-coupler systems can be used and combined. At the same time, it is also possible to use two different systems. The permanently pressurised locking mechanism complies with EU machinery directives.

#### Modular "TiltRotator"

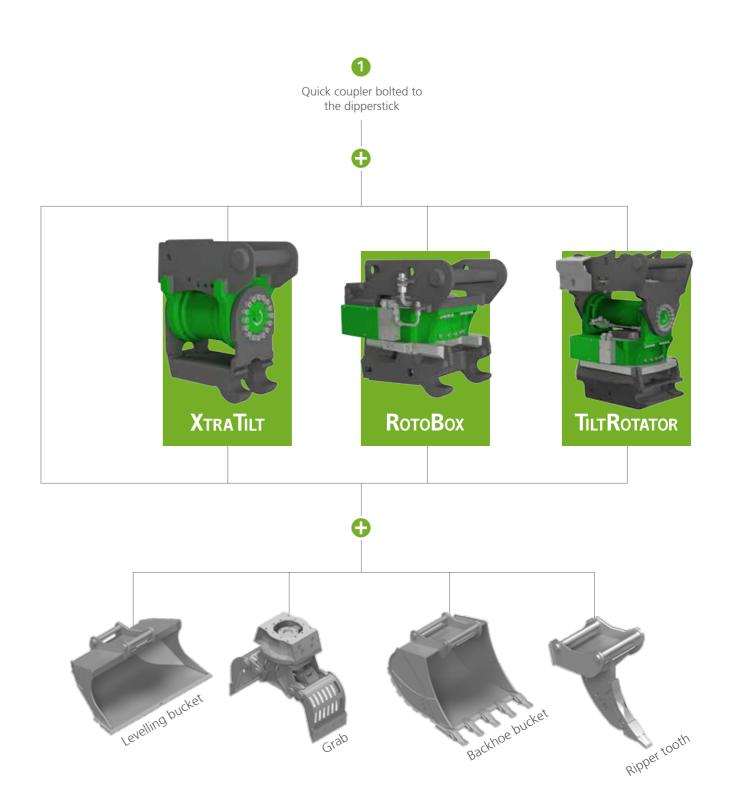
Along with an HKS RotoBox or HKS XtraTilt in a sandwich design, you have combined a flexible, modular TiltRotator.





#### Flexibly replaceable

Here are some examples of how the sandwich solution allows you to work flexibly. You can use the right tool for the work at hand, at any time. As a combination with or without HKS products.





#### Products for the entire world "Made in Germany"

The HKS Dreh-Antriebe GmbH is a family-run company that operates throughout the world. Spread over three production sites in Germany, it employs over 200 staff, with a large number of sales partners all over the world and an export share of 50 percent.

Founded in 1970, the mechanical engineering company produces hydraulic rotary actuators for industry, vehicle construction, mining, mobile hydraulics and marine technology. The latest product development has been designed specifically for construction machine technol-

With longtime experience in design and development under its belt, the company's core competencies also include customer-specific developments, making HKS products among the very best in the industry.

HKS develops, designs and produces to the highest level to meet your demands, without exception. Customers throughout the world depend on the extremely reliable products, and as a result we are the world's market leader in our field.

Through an innovative product policy and continuous expansion of our radius of action the HKS Group has for years recorded sound, stable growth.

HKS - We Turn The World.



You can steadily rely on getting a quality product with HKS. We have also set a target to implement the possible functions for the daily use of your machine.

If you need even on site support, our Service-Team helps personally and fast - even on site. We offer this service anywhere within Germany.

Since every HKS product is individually designed and manufactured for you, we know exactly which components are installed. Should you require support for one of our products, we can immediately provide Meet our team of experts! assistance and replace parts quickly.

Our sales and service team appreciates to advise you with any challenge you experience.

During the winter months we offer regular maintenance. We - as your manufacturer - offer for example a complete maintenance and wear parts replacement, to ensure a smooth utlisation of your excavator.

We put great importance to the fact that you are satisfied with our products.

service@hks-partner.com ▶ +49 6053 6163-619

# Learn from the Experts!





In order to experience the HKS Construction Technology "in action", we regularly present our products at national and international construction machinery trade shows.

At the trade shows, we present our products with various buckets and numerous other attachments (e.g. stone mills, compressor plates, hammers, grabs, etc.)

In addition to the trade shows, you can always make an appointment to test-drive an excavator on our demonstration premises on site.

We are looking forward to your visit!

#### Equipment for in-house exhibitions and demonstrations available on request.

demopark@hks-partner.com

#### The following excavators and tools are at your disposal on site

- > Grave space spoon
- > Small bucket
- > Compressor
- > Hammer
- > Grab
- Milling machine
- > TILTROTATOR 8t excavator
- **> RoтoBox** 10t excavator
- > XTRATILT 12t excavator



# Long-term References Satisfied Customers



#### HPM GmbH - Goslar

Mr. Winter, machinist of H.P.M. Road and civil engineering company says, "the advantage is very clear that the HKS products without cylinder facilitate the work enormously. We have built-in a TR-K 60. The reason for this was not only the flexibility, but also the maintenance-free operation of the TiltRotator."



#### Immo Herbst GmbH - Frankfurt/Main

Till Kuhlig about the built-in TiltRotator: "Not only the great service and that the installation was very simple and straightforward. The TiltRotator permits working in narrow, inaccessible places - this was a key point for our decision. It is important in horticulture and landscaping, that the excavator does not move too much on the lawn, to avoid damaging planted areas. The flexibility and therefore enormeous operating positions are a major advantage with the TiltRotator."

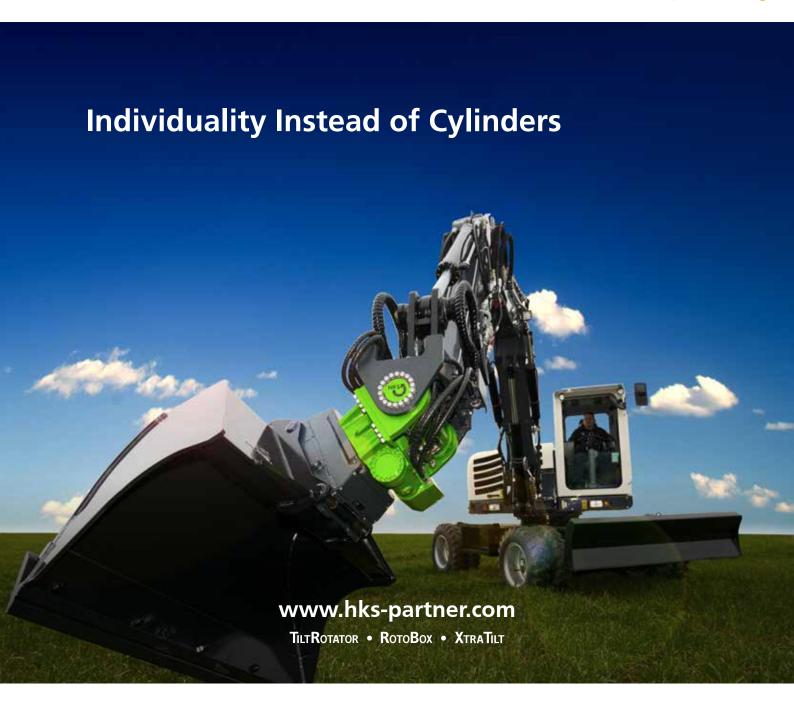


#### Enquiry code/order code

When making an enquiry, please quote the order code by e-mail, fax or telephone.

Your data:	
Company:	Tel.:
Name:	Fax.:
Street:	
Code/City:	
Product	Details about hydraulic excavator/carrier machine
100	□ BVF Manufacturer:
I ilt a	angle: 00°
D 12	
□ Solo □ Lugs □ Combination □ _	Year of construction:  Load class:
Constant	Serial No.:
☐ Oil feedthrough stan☐ Oil feedthrough XL	ndard Voltage: 🗆 12V 🗆 24V
☐ Power feedthrough	No. of free hydraulic circuits on shaft:
□ RB Solo □ RB-K	Grab-turning-circle  proportional  black/white
Tilt angle: 110°	Hammer-shear-circle □ proportional □ black/white
Tilt drigie. 110	2. Grab-turning-circle □ proportional □ black/white
☐ Oil feedthrough stan☐ Oil feedthrough XL	ndard Hammer line available? □ yes □ no
☐ TR Solo ☐ TR-K ☐ Power feedthrough	Hammer valve available?
	□ mechanical with ball valve □ electrically switchable
Technical information for adapter to dipperstick conne	ection Leak oil line? □ yes, installed □ left □ right
	□ no
Bolts Ø (mm) Distance (mm)	Load-holding valve (recommended for mini-excavators < 5 t)?
Distance (mm)	□ yes □ no
Distance (IIIII)	Quick coupler hydraulic system present?  uges  no Currently installed model
Angle betweer bolt centre axis	of quick coupler:
	Sandwich solution required? □ yes □ no
Bolts Ø (mm)	Second model of quick coupler:
Dois & (IIIII)	☐ mechanical ☐ hydraulic ☐ fully hydraulic
Operating material (hydraulic medium)	Application information
☐ Biological, if so, which:	Are hydraulic attachments used? □ yes □ no
	If so, which ones?
Remarks:	Limited Warranty for hammer / and milling insert - please consult our sales team.
	How many hydraulic circuits for hydraulic attachments required?
	□ 1 Hydraulic circuit Leak oil □ yes □ no
	☐ 2 Hydraulic circuits Leak oil ☐ yes ☐ no







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