



**BETTER WITHOUT
CYLINDERS**

THE HKS
CONSTRUCTION TECHNOLOGY





Perfect for professionals:
Precise spatial positioning saves time
and money.

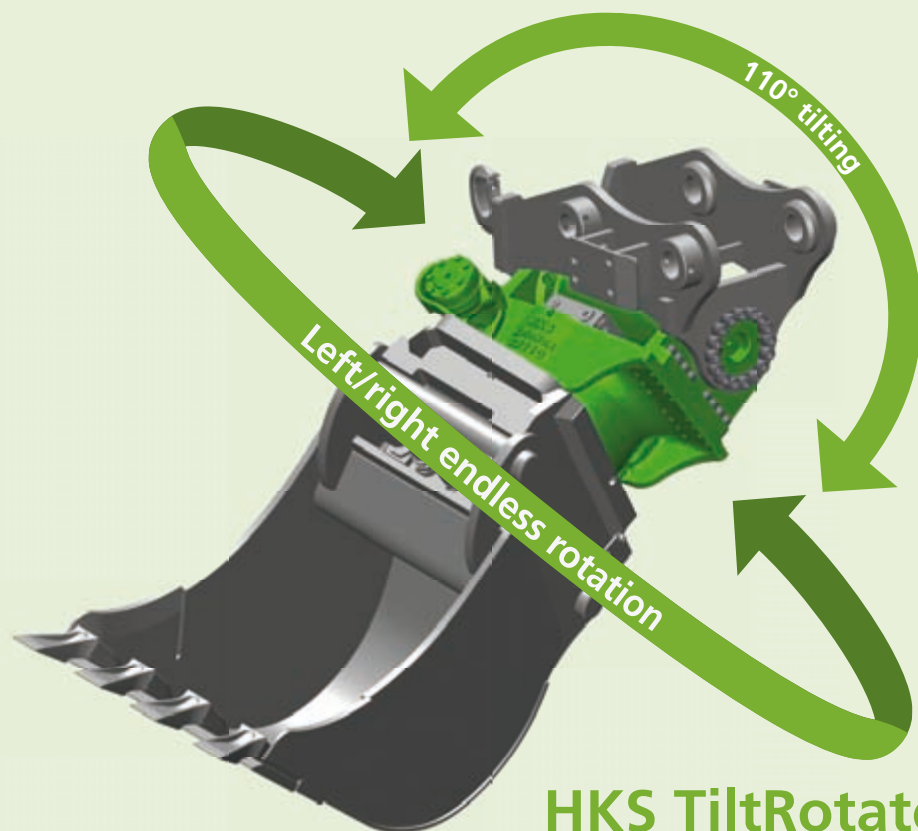
Secure your competitive
advantage with **HKS**
Construction Technology

- + Precise spatial positioning of attachments without the use of cylinders
- + Achieve unimaginable operating positions
- + 40% higher machine productivity
- + Compatible with all common quick-coupling systems and carrier devices



We will get your **attachments** and your **buckets** to **tilt** and to **rotate endlessly**

Boost the productivity of your attachments with products from **HKS Construction Technology** and your carrier device will turn into a multifunctional machine. The extended radius of action that your attachment can achieve allows a wider variety of work to be carried out more quickly, more precisely and more efficiently. We can provide a demand-oriented solution for every application.



HKS TiltRotator





180°

Page 6

HKS XtraTilt

Tilt up to 2 x 90°

The **HKS XtraTilt** is the perfect answer for cylinder-less tilting.

The ability to tilt makes operating positions easier to reach.

Working on embankments has never been this easy.



360°

Page 10

HKS RotoBox

Continuous rotating of attachments with the HKS RotoBox.

The **HKS RotoBox** is your introduction to spatial use of your buckets and attachments.

The ability to rotate makes operating positions easier to reach.

Change from a backhoe bucket to a face bucket by simple rotation.

A selection of possible applications

Garden and landscaping work
Trench digging
Demolition work
Civil engineering
Work on drainage channels
Road construction
Backfilling during construction work
Foundation work

Undermining
Embankment work
Metering work
Work on inclined planes (hillsides)
Excavation work
Ripper tooth
Pipe compressor
Hydraulic hammer and milling insert (limited warranty)



Page 14

HKS TiltRotator

2 x 55° tilting and continuous rotating.

The **HKS TiltRotator** supports your carrier device with two new functions. The perfect solution with its cylinder-less tilt unit.

Simultaneous tilting and rotating make a maximum of operating positions possible.

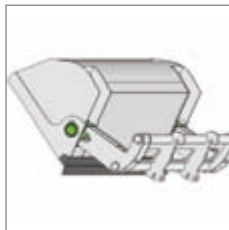
Spatial positioning gives your attachments endless scope for different applications.



Photo: Erwin Bauer



Special solutions from HKS



High-tip bucket with **HKS XtraTilt**



Gravel road finisher with **HKS XtraTilt**



HKS XtraTilt

Up to 2 x 90° tilting

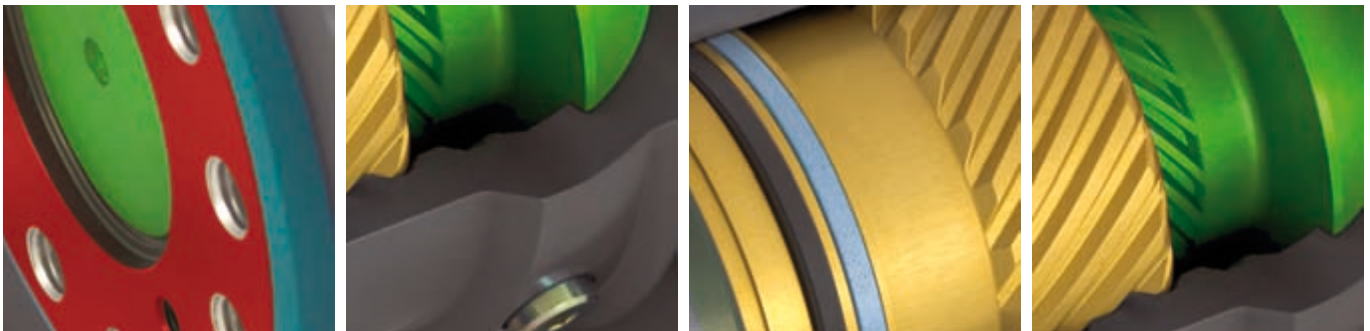
One HKS XtraTilt for all attachments.

Providing an additional movement axis for more **versatility** and **flexibility**.

Many years of experience and innovation have made the **HKS XtraTilt** more robust, reliable and durable. The special deflectors on both sides of the **HKS XtraTilt** prevent dirt from entering the housing as soon as it leaves the factory, thus considerably reducing maintenance costs.

Details

- ▶ Standard tilt angles: 100°/140°/180°
- ▶ Holding torque of up to 165,000 Nm
- ▶ Operating pressure of up to 210 bar
- ▶ **38 designs** with 15 sizes for carrier device with a weight of up to 60 t
- ▶ Other tilt angles available upon request



Product advantages

- + High availability:** no lubrication or readjustment needed
- + Compatible** with all quick couplers and carrier devices
- + Greater reach** as narrower attachments can be used to significantly reduce the operating width
- + Any start-up position is accurately** retained thanks to its excellent holding torques and precision manufacturing
- + Actuator centring on both sides for efficient power intake and transmission**
- + Special manufacturing, heating and hardening processes** give the robust welded housings excellent dimensional accuracy and **protection from wear and rust**

For us, innovation is not just about designing our actuators to make them stronger and more powerful, but also to create advancements in terms of environmental efficiency. Our actuators can also be operated with biological operating media if requested. This is possible by individually customising modified sealing systems.

In fact:

With the **HKS XtraTilt** series, you are purchasing a durable quality product made in Germany incorporating over a decade of experience in construction and applications.

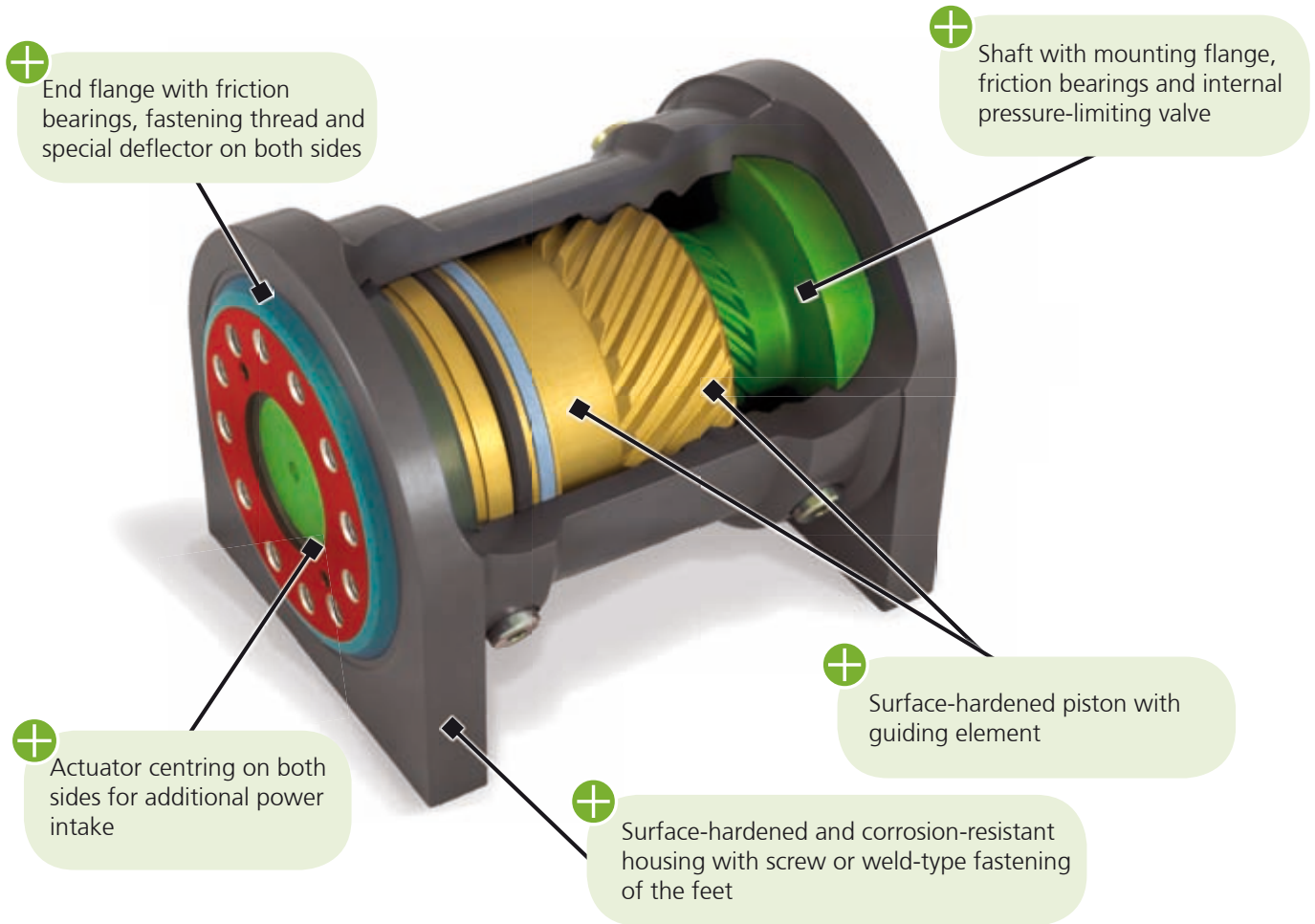
Comparison with conventional products

—	Bucket with linear cylinder	+	HKS XtraTilt
Only suitable for ditch cleaning buckets			Solid, compact, robust, safe and powerful
Damage to the cylinders from soil, stones and dirt			A larger tilt angle to achieve greater reach
Continual relubrication / greasing of the cylinder bearing required			Long service intervals save maintenance costs
Tilt head with bearing positions that require lubrication, time-consuming assembly			Strong, large-dimension bearings
Simplified representation			

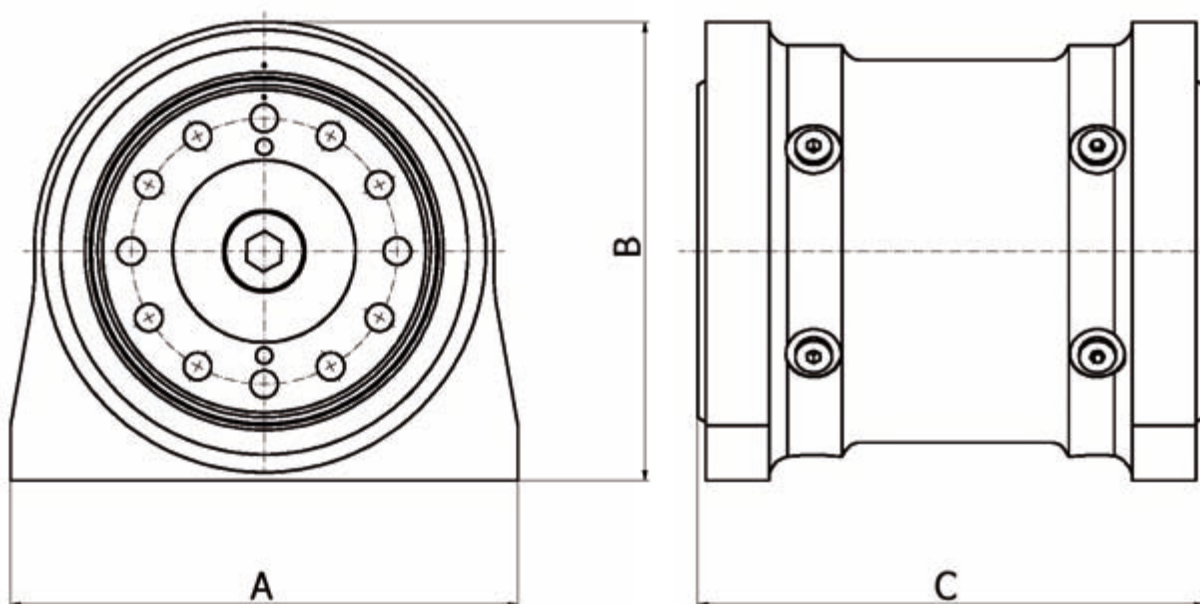


HKS XtraTilt components – made for continuous use

Just the right device for harsh everyday conditions: the compact 4-part construction from high-quality materials and its precision manufacturing make the **HKS XtraTilt** the most robust rotary actuator in its class.



Technical illustration



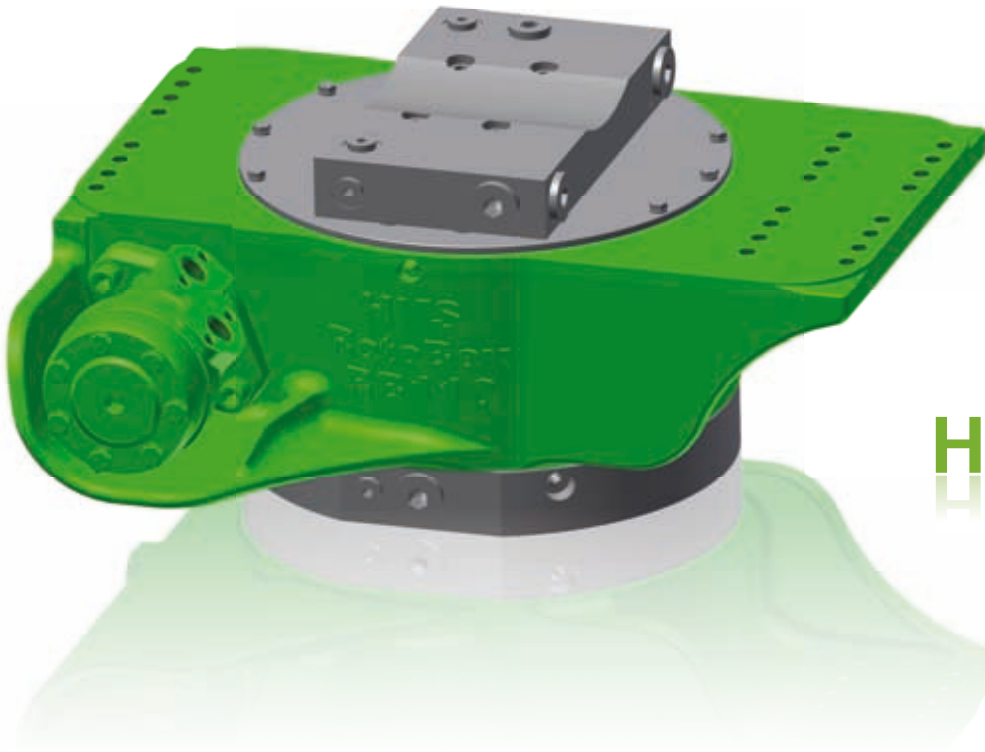
Technical data and dimensions

Excavator weight [t]	XtraTilt type	Tilt angle	Holding torque [Nm]	Working pressure [bar]	Displacement [dm ³]	Weight [kg]	Dimensions		
							A [mm]	B [mm]	C [mm]
< 1.8	BVC 100	100°	2,480	190	0.18	19	150	152	197
		140°			0.25				221
		180°			0.323				245
1.8–3.8	BVC 115	100°	7,300	190	0.284	42	220	187	264
		140°			0.399				306
		180°			0.513				344
3–5.5	BVC 125	100°	7,800	190	0.385	51	220	212	267
		140°			0.538				305
		180°			0.693				345
4–6.8	BVC 130	100°	10,000	210	0.58	59	270	227	267
		140°			0.813				305
		180°			1.045				345
5–7.5	BVC 140	100°	10,900	190	0.696	85	300	250	291
		140°			0.974				337
		180°			1.253				383
7–9	BVC 160	100°	17,500	210	1.147	87	300	266	291
		140°			1.606				337
		180°			2.064				383
8.5–11	BVC 180	100°	19,500	190	1.421	121	320	290	319
		140°			1.989				371
		180°			2.557				423
10–13	BVC 225	100°	36,700	190	1.892	158	382	327	350
		140°			2.649				404
		180°			3.226				455
12–16	BVC 240	100°	40,000	190	2.34	167	382	328	354
		140°			3.281				412
15–23	BVC 250	100°	47,300	190	2.519	200	405	353	368
		140°			3.527				430
22–26	BVC 260	100°	53,000	190	3.291	266	450	380	420
		140°			4.61				482
25–29	BVC 270	100°	63,000	190	3.967	322	490	400	460
		140°			5.554				534
28–38	BVC 300	100°	90,000	190	5.742	554	570	478	540
		140°			8.039				612
37–50	BVC 350	100°	100,000	190	7.969	666	608	515	565
		140°			11.187				641
48–60	BVC 400	100°	140,000	190	12.5	1,240	760	620	675
		140°			17.5				800

Further dimensions available on request ▶ sales@hks-partner.com

All weight data **exclude** quick coupler and dipperstick connection.





HKS RotoBox

Continuous rotating in both directions

One HKS RotoBox for all attachments

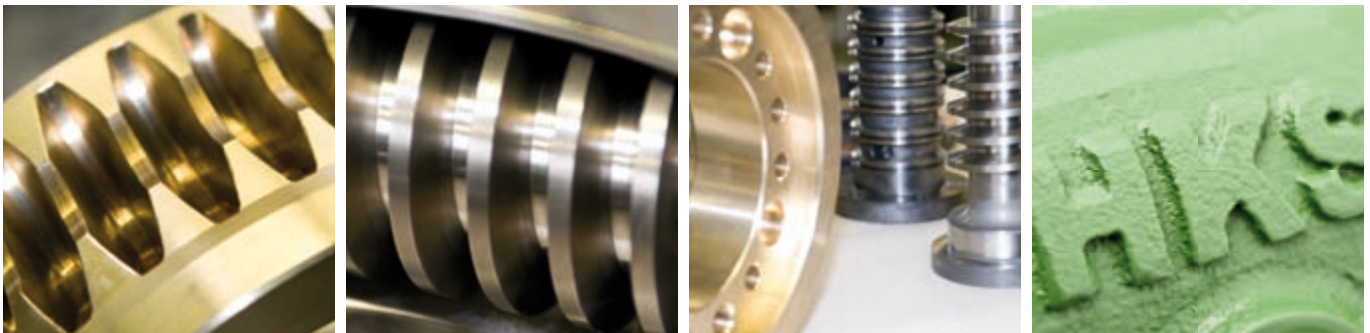
Even **greater freedom of movement** due to an **extended radius of action**

Your operating range is extended to 360° with the **HKS RotoBox**. This makes it possible to work more flexibly in a stationary position and to enter into new fields of operation.

Hydraulic tools requiring a large amount of oil can also be used with the optional **HKS rotary oil feedthrough**.

Details

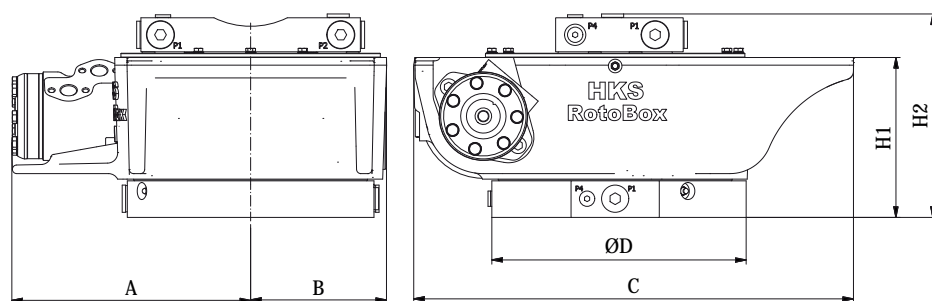
- ▶ Torque of up to 5,200 Nm
- ▶ Up to 8 rotations per minute
- ▶ Operating pressure of up to 175 bar
- ▶ 6 sizes with a carrier device weight of up to 33 t



Product advantages

- + **Any position** can be maintained accurately due to self-locking
- + **Compatible** with all quick couplers and carrier devices
- + **Greater reach** – with a continuously rotating 360° radius of action your attachments can exploit significantly more operating positions
- + **A long service life** – due to high-strength steel casting and a worm drive running in oil – reduces downtime and ensures that your carrier device is almost always available for use
- + A **low overall height** ensures high ripping power and breakout forces
- + A backhoe bucket is quickly turned into a face bucket by simple rotation

Technical illustration



Technical data and dimensions

HKS RotoBox type	RB 30	RB 60	RB 110	RB 180	RB 250	RB 330
Excavator weight (t)	2.0–3.5	3–6	5–11	10–18	17–25	24–33
Weight rotary oil feedthrough system [kg]	7	13	24	28	46	102
Flow rotary oil feedthrough system at pressure difference $\Delta p = 10$ bar (HLP 46 30 °C) [l/min.]	42 [l/min.]	52 [l/min.]	130 [l/min.]	160 [l/min.]	200 [l/min.]	360 [l/min.]
Weight RB without rotary oil feedthrough system [kg]	44	78	121	173	301	378
Axial load max. [N]	95,000	100,000	150,000	200,000	400,000	600,000
Radial load max. [N]	48,000	95,000	130,000	170,000	250,000	350,000
Torque @ 175 bars [Nm]	850	1,350	2,850	3,500	4,700	5,200
Max. rotations/minute @ l/min.	8 @ 28 l/min.	8 @ 28 l/min.	8 @ 33 l/min.	8 @ 45 l/min.	6 @ 45 l/min.	5 @ 45 l/min.
Dimensions						
A [mm]	112	237	281	300	280	300
B [mm]	176	133	159	183	226	257
C [mm]	425	445	517	554	635	720
ØD [mm]	180	266	308	360	440	508
H1 [mm]	134	156	177	209	249	269
H2 [mm]	171	198	239	267	322	345

All weight data **exclude** quick coupler and dipperstick connection.



HKS Rotary Oil Feedthrough

HKS Rotary Oil Feedthrough with 5 channels

So that your attachments can work at full capacity

An additional channel for power feedthrough is available upon request

With the extra large **HKS Rotary Oil Feedthrough**, built-on hydraulic tools are supplied with oil at a flow rate of up to 360 l/min. at a pressure differential of $\Delta p = 10$ bar (HLP 46 30 °C).

Only the **HKS Rotary Oil Feedthrough** can get the flow rate supplied by your carrier device to your attachment at the lowest pressure differential. This way, your tools work at full capacity. **Don't make a compromise and put your trust in the market leader.**

Full power for your application



Compactor



Screener crusher



Drum cutter



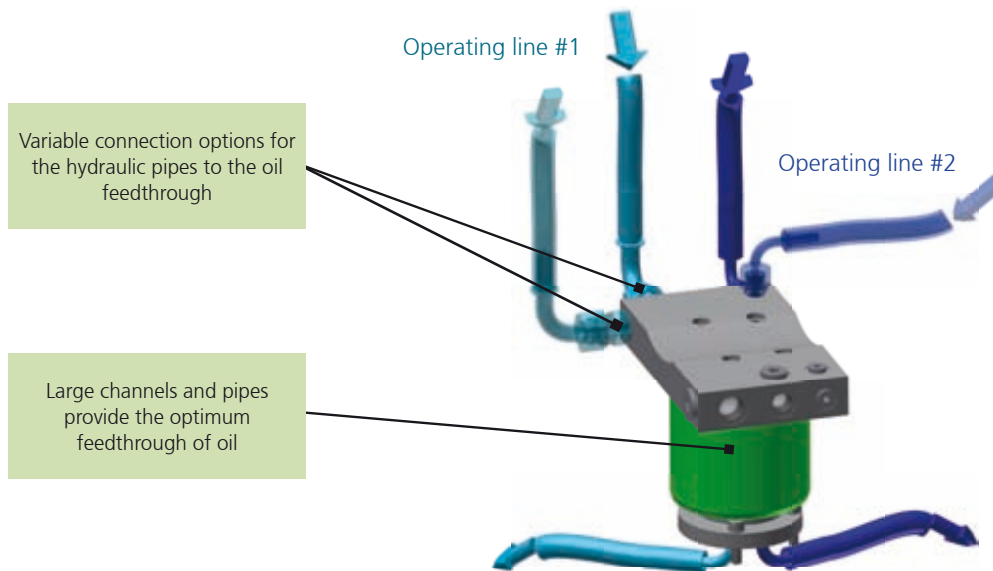
Grab

Product advantages

- + **Maximum efficiency** of your hydraulic attachments
- + **Wear-resistant** and high-quality components
- + **360 l/min. flow rate** at the lowest pressure differential
- + **Optimum adjustment** to any quick coupler
- + Your attachment can function at **up to 350 bar** operating pressure

Illustration of the flow rates

The unique construction and special manufacturing processes allow for particularly large channels for greater passage and minimum loss of efficiency. The individual flow rates can be adjusted dynamically using multiple connectors. This way, the piping can be optimally adjusted and implemented according to your carrier device.



Technical data and dimensions

HKS Oil feedthrough for HKS RotoBox type	RB 30	RB 60	RB 110	RB 180	RB 250	RB 330
Excavator weight (t)	2.0–3.5	3–6	5–11	10–18	17–25	24–33
Weight rotary oil feedthrough system [kg]	7	13	24	28	46	102
Flow rotary oil feedthrough system at pressure difference $\Delta p = 10\text{bar}$ (HLP 46 30 °C) [l/min.]	42 [l/min.]	52 [l/min.]	130 [l/min.]	160 [l/min.]	200 [l/min.]	360 [l/min.]



The all-rounder
HKS TiltRotator

2 x 55° tilting and continuous rotating at the same time
 One HKS RotoBox for all attachments
 You will achieve unimaginable operating positions

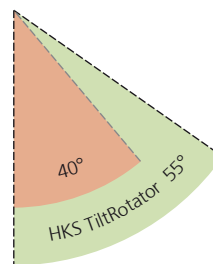
Thanks to the **HKS TiltRotator**, you are able to tilt your attachment $\pm 55^\circ$ in both directions and rotate continuously at the same time. Both functions enable you to achieve spatial positioning easily and accurately. This increases your efficiency and productivity.

With its compact and robust tilt unit, the **HKS TiltRotator** is the perfect enhancement to any conventional wider cylinder variants that are prone to faults. An optimised **HKS XtraTilt** with an extended torque and a reduced overall height is used for the **HKS TiltRotator**.

Details

- ▶ Standard tilt angle of 2 x 55° (2 x 70° upon request)
- ▶ Holding torque of up to 90,000 Nm
- ▶ Torque of up to 43,000 Nm
- ▶ 8 designs for carrier device weights of up to 33 t
- ▶ Up to 8 rotations per minute
- ▶ Modular system

Tilt angle comparison



The **HKS TiltRotator** has a larger tilt angle ($\pm 55^\circ$) than conventional cylinder models (max. $\pm 40^\circ$).

Product advantages

More efficient machine capacities due to:

- + Larger radius of action when stationary
- + Larger tilt angle
- + The option to mount attachments easily with a quick-coupler system in any working position
- + Expanding the mobility of your attachments optimises their range of operation

A reduction in construction site costs due to:

- + less movement of the vehicles
- + a narrower operating width meaning less excavation
- + a reduction in fuel and wear on machines
- + minimum maintenance requirements and less lubrication to reduce downtimes

- + Up to **40% higher machine productivity** reduces the amortisation period
- + **Problem-free retrofitting** of existing machines due to its compatibility with all quick couplers and carrier devices
- + **Maximum reach** and **accurate maintaining** of operating positions
- + **More orders** in the same period of time

Indispensable in gardening and landscaping, drainage channel construction and civil engineering

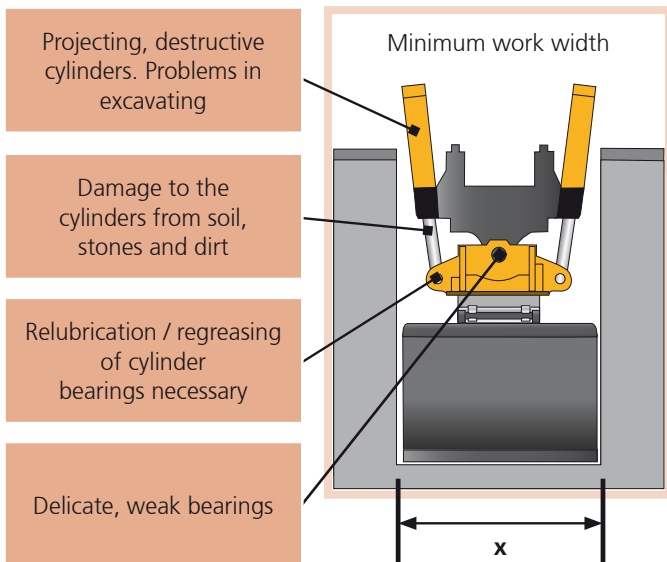
“The HKS TiltRotator is the best system on the market for me and indispensable in drainage channel construction!”

Ingo Müller, excavator operator, Josef Stix GmbH & Co. KG, Stockstadt am Main

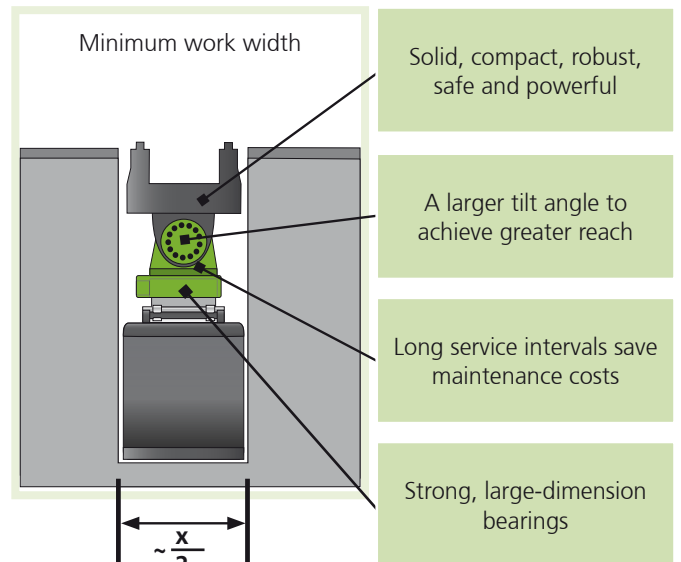
Comparison with conventional products



Conventional models

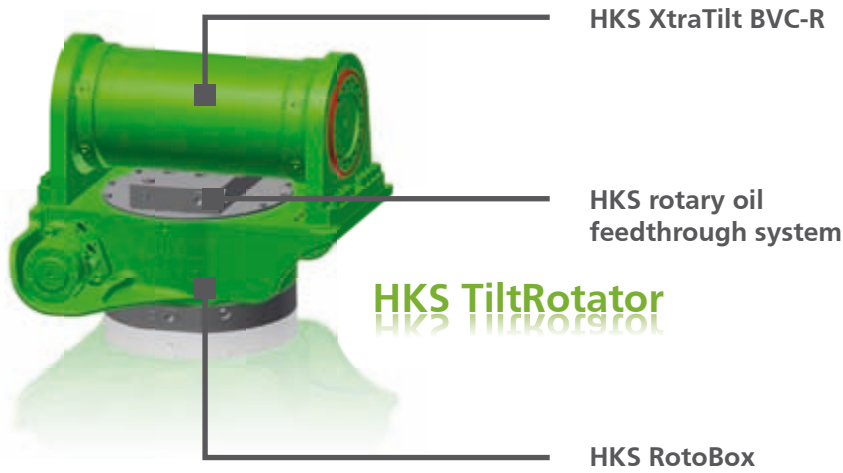


HKS TiltRotator



Simplified representation

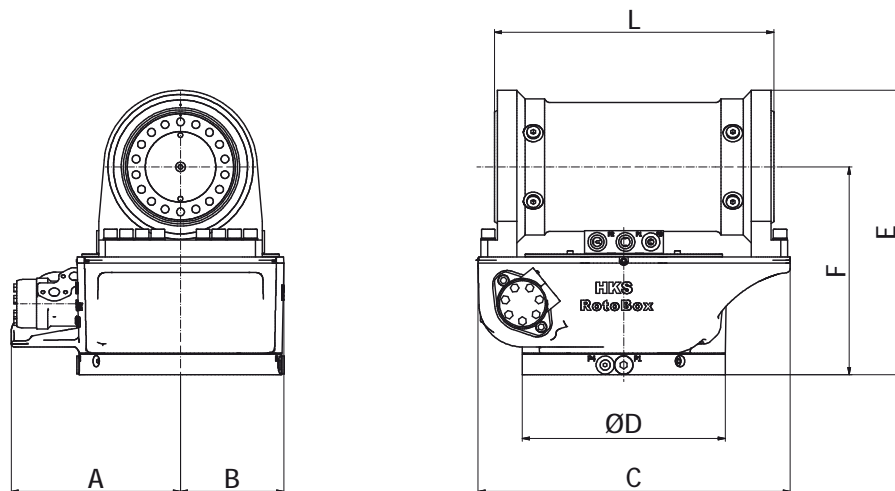
Overview



Technical data and dimensions

HKS TiltRotator type	TR 20	TR 35	TR 60
Excavator weight (t)	2.0–2.5	2.4–3.5	3–6
Assigned RB with rotary oil feedthrough system	RB 30	RB 30	RB 60
Weight rotary oil feedthrough system [kg]	7	7	13
Flow rotary oil feedthrough system at pressure difference $\Delta p = 10$ bar (HLP 46 30 °C) [l/min.]	42 [l/min.]	42 [l/min.]	52 [l/min.]
RotoBox			
Weight RB without rotary oil feedthrough system [kg]	44	44	78
Axial load max. [N]	95,000	95,000	100,000
Radial load max. [N]	48,000	48,000	95,000
Torque @ 175 bar [Nm]	850	850	1,350
Max. rotations/minute @ l/min.	8 @ 28 l/min.	8 @ 28 l/min.	8 @ 28 l/min.
Dimensions			
A [mm]	112	112	237
B [mm]	176	176	133
C [mm]	425	425	445
ØD [mm]	180	180	266
H [mm]	134	134	156
XtraTilt BVC-R			
Assigned BVC-R type	BVC-R 90	BVC-R 100	BVC-R 115
Tilt angle	110°	110°	110°
Displacement [dm³]	0.288	0.413	0.563
Torque @ 210 bar	1,700 Nm	2,600 Nm	3,500 Nm
Holding torque @ 210 bar	5,000 Nm	7,500 Nm	11,000 Nm
Weight [kg]	27	35	59
TiltRotator			
Weight TR without rotary oil feedthrough system [kg]	71	79	137
Dimensions			
E [mm]	291	301	364
F [mm]	221	226	272
L [mm]	301	353	357

Technical illustration



TR 85	TR 110	TR 180	TR 250	TR 330
5-8.5	8-11	10-18	17-25	24-33
RB 110	RB 110	RB 180	RB 250	RB 330
24	24	28	46	102
130 [l/min.]	130 [l/min.]	160 [l/min.]	200 [l/min.]	360 [l/min.]
121	121	173	301	378
150,000	150,000	200,000	400,000	600,000
130,000	130,000	170,000	250,000	350,000
2,850	2,850	3,500	4,700	5,200
8 @ 33 l/min.	8 @ 33 l/min.	8 @ 45 l/min.	6 @ 45 l/min.	5 @ 45 l/min.
281	281	300	280	300
159	159	183	226	257
517	517	554	635	720
308	308	360	440	508
177	177	209	249	269
BVC-R 130	BVC-R 130 (longer version)	BVC-R 180	BVC-R 200	BVC-R 260
110°	110°	110°	110°	110°
1.227	1.665	2.822	3.598	7.249
8,000 Nm	12,000 Nm	15,000 Nm	21,000 Nm	43,000 Nm
18,000 Nm	22,000 Nm	38,000 Nm	50,000 Nm	90,000 Nm
87	100	155	203	388
208	221	328	504	766
424	424	505	564	679
312	312	369	419	489
392	471	496	574	636

All weight data **exclude** quick coupler and dipperstick connection.



HKS Construction Technology at a glance

All combinations • greatly simple • simply great

	HKS XtraTilt	HKS XtraTilt L version	HKS XtraTilt K version	
	as single implement	with straps for direct mounting on the shovel	with dipperstick connection and quick coupler	with quick coupler adaptation and quick coupler (sandwich concept)
Dipperstick connection (optional) Compatible with every excavator up to 60 t Also welded or with quick coupler adaptation (sandwich concept)				
HKS XtraTilt <small>BETTER WITHOUT CYLINDERS</small> 38 designs with 15 sizes up to 60 t Tilt angle: 100°, 140° or 180° Holding torque up to 165,000 Nm				
Rotary oil feedthrough (optional) Up to 360 l/min flow rate 5 channels				
HKS RotoBox Available in 6 sizes from 2 t up to 33 t Torque up to 5,200 Nm Up to 8 rotations/min. (with adapter plate)				
Quick coupler (optional) Compatible with any mechanical and hydraulic quick coupler				

We will be delighted to offer customised solutions.
Please don't hesitate to contact us.

































Option:
Welding connection consisting of dipperstick connection and XtraTilt for a more compact construction height.



All the facts at a glance:

- ▶ Adapter plate is suitable for **all quick couplers**
- ▶ Dipperstick connection is suitable for **all hydraulic carrier devices**
- ▶ Suitable for **all attachments**

Legend: L = Straps • K = Combination (dipperstick connection with quick coupler)

HKS RotoBox	HKS RotoBox K version		HKS TiltRotator	HKS TiltRotator K version	
as single implement	with dipperstick connection and quick coupler	with quick coupler adaptation and quick coupler (sandwich concept)	as single implement	with dipperstick connection and quick coupler	with quick coupler adaptation and quick coupler (sandwich concept)
					
			 Optimised XtraTilt BVC-R model Better performance – lower construction height	 Optimised XtraTilt BVC-R model Better performance – lower construction height	
					
					
					
					

These two pages are enclosed as a poster of this brochure. Should they be missing at this point, you are welcome to reorder a new free copy ▶ marketing@hks-partner.com

HKS control system

Precision engineering also requires precision control. This is why HKS offers a high-performance electrical control unit for its products which provides optimum support for the functions of the TiltRotator. With the **HKS control system** you can tilt and rotate while operating your quick couplers and control your attachment – all at the same time and all at the press of a button.

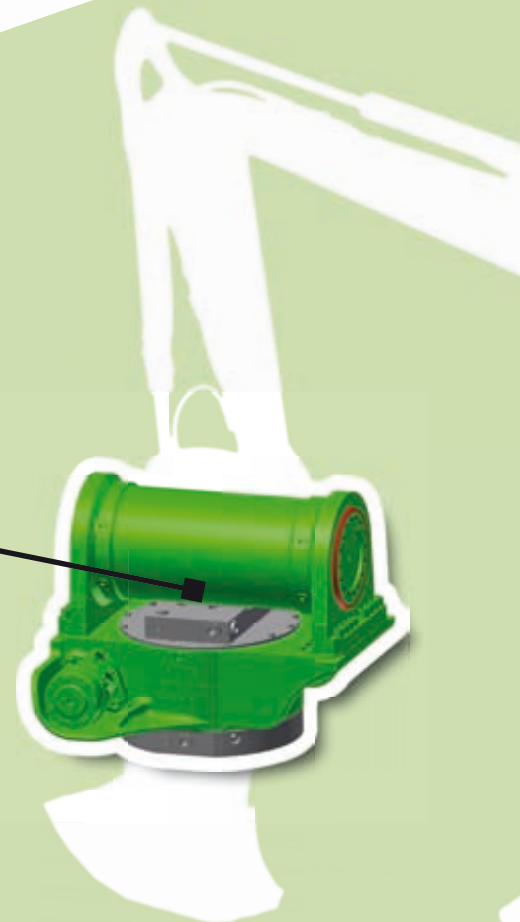
Our developers have also made sure of maximum system flexibility for the **HKS control system**.

Details

- ▶ The control unit and cable set can easily be installed without interfering with the on-board electrics, but they can also be incorporated in the existing electrical system by a specialist workshop if required.
- ▶ The control system makes use of the existing hydraulic installation in the basic machine.
- ▶ **No new installation necessary!**
- ▶ Suitable for all hydraulic excavators with an on-board voltage of 12–24 V.

HKS TiltRotator

With the optimum control system supporting your **HKS TiltRotator** work is as simple as if it were your extended arm.



Multifunctional joysticks

The joystick, wired with highly flexible single conductors, can be fitted with up to 6 pressure switches and can be perfectly adapted to the applicable requirements. It also sits well in the hand due to its ergonomic shape.

Control unit

Polarised connectors and its solid design guarantee that the control unit can be assembled quickly and easily. The sturdy plastic housing protects it from dirt and is also short circuit-proof

Other features:

- ▶ Programmable for up to 4 users
- ▶ All settings (feeders) are also programmable from the controller

Feeders

The feeder ensures that the **HKS TiltRotator** is only supplied with the amount of oil that is required.

Valve block

A valve block with proportional valves for accurately controlling the **HKS TiltRotator**.





HKS demonstration park

HKS Construction Technology would like to invite you to test an 8 t compact excavator at our demonstration site.

Different buckets and a large number of other attachments (e.g. stone mill, compressor plate, hammer, gripper, etc.) are available to use on the test excavators.

Due to the large demand, we would like to ask you to arrange an appointment with us prior to your visit: demopark@hks-partner.com

We look forward to your visit!



Modern engineering products for the whole world – “Made in Germany”

The HKS group is a family company operating throughout the world with two production sites in Germany employing over 150 staff, a large number of sales partners throughout the world and an export share of 50%. Founded in 1970, the engineering company produces hydraulic rotary actuators for industry, vehicle construction, mining, mobile hydraulics and marine technology. The latest product developments are specifically for construction machine technology.

The third generation has now been working as part of the management team within the family company for more than a year and is bringing innovation, flexibility and passion into the group. Production takes place at the highest standard with the latest CNC machines based on 40 years of experience. With 25 years of experience in construction and development, customer-specific developments are also part of our core expertise. This makes our products the best in the industry.

HKS develops, designs and produces at the highest standard in order to fulfil all of our customers' requirements!

Enquiry / order code

Please inform us of the order code on enquiry, either by e-mail, fax or on the telephone.

Hydraulic excavator / carrier implement used

Manufacturer: Equipment code:

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
										Manufacturer type of quick coupler system mechanical <input type="checkbox"/> hydraulic <input type="checkbox"/>			
										Fixed arm connection to the actuator screwed <input type="checkbox"/> welded <input type="checkbox"/> as quick coupler adaptation (sandwich concept) <input type="checkbox"/>			
										Load-holding valve recommended for mini-excavators of up to 5 t due to possible leakage in the valves of the hydraulic excavator. <input type="checkbox"/>			
										Rotary oil feedthrough only for HKS RotoBox and HKS TiltRotator. <input type="checkbox"/>			
										Tilt angle HKS XtraTilt: 100°/140°/180° HKS TiltRotator: 110°			
										Actuator size , e.g.: 240			
										TYPE: BVC / BVC-L / BVC-K / RB / RB-K / TR / TR-K See technical data P.9 / P.11 / P.16			

Options:

- HKS control system (EC)
- changeover valve (UV)
- modular design
- biological service media

Notes:

Your address:

Company: _____

Name: _____

Address: _____

Phone: _____

Fax: _____

E-mail: _____

Company stamp:

HKS Dreh-Antriebe GmbH[®]

Leipziger Straße 55 • D-63607 Wächtersbach-Aufenau • Germany
 Phone +49 (0)6053 61630 • Fax +49 (0)6053 616339
 vertrieb@hks-partner.com • www.hks-partner.com





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