

# TR14NOX

available from 1st quarter 2017

# Tiltrotator

This cylinderless solution features a very compact design with a narrow width and without any protruding parts. The hydraulics are integrated into the solid cast housing and the entire installation is easy. The patented tilting function is provided by the elliptic piston design with only one thread. There is the option to attach a wide range of tools that require a high oil flow and a high pressure. Option: electrical swivel for the use of 2D/3D excavating systems and extra safety requiring couplers.



### Advantages:

- **Precision and safety** due to „smooth“ proportional control (optional).
- **High stability and long service life** thanks to special cast housing.
- **Low overall height** thanks to elliptic rotary actuator: large travel.
- **High and constant tilt force** due to cylinderless rotary actuator.
- **No protruding parts:** excavation with narrow bucket possible in small, deep canals, even under or in between existing tubes.
- **Low maintenance:** worm drive lubricated permanently (grease).
- **Option:** High-flow swivel up to 30 MPa / 4320 psi or electric swivel.

Tiltrotator Type	TR14NOX			
	unit	DF10	DF4	CSP
Machine size	t/lbs	10 - 14 / 22000 - 30800		
Breaking force max. (ISO)	kN/lbf	110 / 24200		
Bucket width max.	mm/in	1600 / 63		
Weight (from) <sup>1)</sup>	kg/lbs	440 / 968		
Width A <sup>1)</sup>	mm/in	225 / 8.9		
Length B <sup>1)</sup>	mm/in	610 / 24		
Height C <sup>1)</sup>	mm/in	550 / 21.7		
Tilt angle	°	2 x 50		
Tilt torque	Nm/ft.lbs	26000 / 19175		
Rotation speed	1/min	8,5 at 45 l/min / 11.9 GPM		
Rotation torque	Nm/ft.lbs	6000 / 4425 constant at 360° continuous		
Oil flow extra function 1/2 max.	l/min / GPM	SD <sup>2)</sup> : 70/40 / 18.5/10.6 HF <sup>3)</sup> : 70/120 / 18.5/31.7	SD <sup>2)</sup> : 70/40 / 18.5/10.6	SD <sup>2)</sup> : 70/40 / 18.5/10.6 HF <sup>3)</sup> : 70/120 / 18.5/31.7
Hydraulic pressure max.	MPa/psi	rotation: 20 / 2880 tilt: 30 / 4320	rotation: 20 / 2880 tilt: 30 / 4320	tilt: 30 / 4320
Recommended pressure in return line	MPa/psi	2,5 / 360		
Number of swivel channels extra function	number	4		
Number of swivel channels quick coupler	number	2		
Number of channels separate drain line	number	1		
Electric swivel (optional)	channels x A	12 x 0,5		

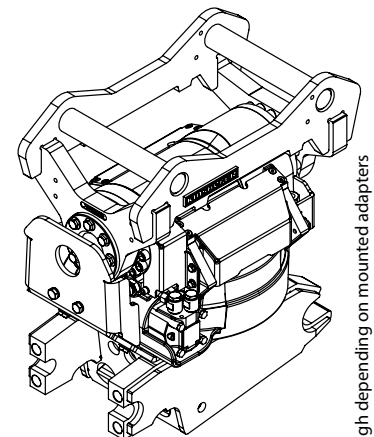
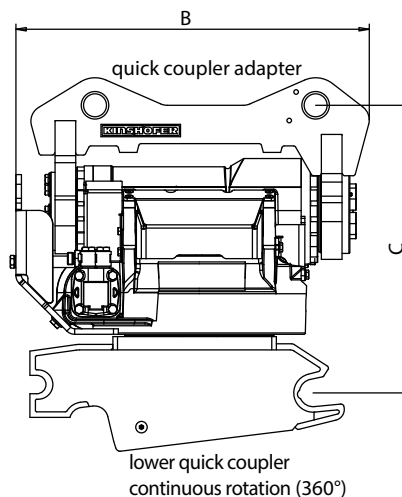
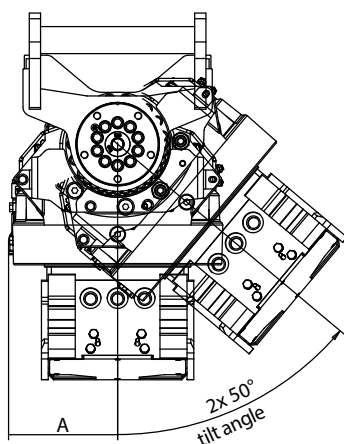
<sup>1)</sup> reference: TR14NOX S45/S45 <sup>2)</sup> SD = Standard-swivel <sup>3)</sup> HF = High-Flow-swivel

### Controls

Type	Description
CSP <sup>4)</sup>	SVAB RT controller, tilt and rotation are controlled by proportional solenoid valves and can be run simultaneously, extra function and quick coupler are controlled by on/off valves
SVAB	quick coupler are controlled by on/off valves
CSP <sup>4)</sup>	NOXPROP controller, tilt, rotation and extra function are controlled by proportional solenoid valves and can be run simultaneously, quick coupler is controlled by on/off valves, separate display module, easy and fast installation
NOXPROP	quick coupler is controlled by on/off valves, separate display module, easy and fast installation
DF4 <sup>5)</sup> *	- tilt function, extra 1 (extra 2 as an option) and quick-coupler are controlled by changing over between the functions of circuit 1 - rotation function is controlled by circuit 2
DF10 <sup>6)</sup>	for each function (rotate, tilt, quick change, extra 1, extra 2) separate double acting hydraulic circuit on excavator dipper

\* two hydraulic circuits needed; <sup>4)</sup> installation of **KINSHOFER** comfort control <sup>5)</sup> installation of control; original joysticks remain <sup>6)</sup> original excavator control remains

**Control System CSP consists of:** controlbox, 2 joystick grips, wiring from joysticks to Tiltrotator, proportional pressure control valve, display



total height depending on mounted adapters

# Attachments / Sets / Mounting Options

# TR14NOX

Especially adapted to the TR14NOX, there are different attachments and sets available.

Below you will find a set of the most common buckets used on the TR14NOX as well as the different available mounting options.

In combination with the **NOX** Tiltrotator, a large variety of possibilities is provided to make your carrier machine work more efficiently - in more than 3 dimensions ...

Find different tool examples on the last pages.

For more possible tool combinations, please see our catalogs

- ① CONSTRUCTION - GENERAL CONSTRUCTION
- ② CONSTRUCTION - LANDSCAPING & SNOW REMOVAL

### Gripper

- Always mounted to the tiltrotator, no dismantling necessary when working with other attachments.
- For handling posts, tubes, pallets, rocks, sewer cover, etc.
- Available for S45 / S50 or S60 lower quick coupler (others on request).



### Bucket Set includes

- SKP Grading Bucket cleans up and shapes sites.
- SKD Backhoe Bucket for trenching.
- SKK Trench Bucket for narrow cable channels.

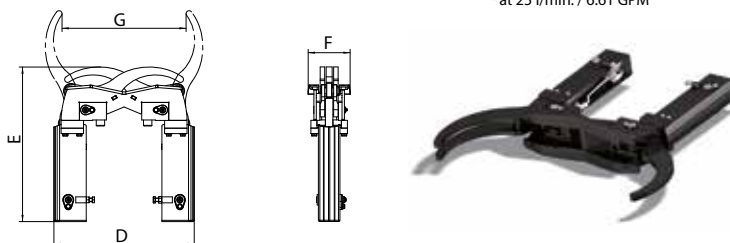


### Gripper

Type	Lower quick coupler	Self weight (approx. kg/lbs)	Dimensions D x E x F (mm/in)	max. Opening width G (mm/in)	Closing time <sup>1)</sup> (sec.)	Closing force (kN/lbf)	Load capacity (kg/lbs)
TRG10	S45/50	80 / 176	600 x 675 x 205 / 23.62 x 26.57 x 8.07	615 / 24.21	1.3	10 / 2200	500 / 1100
TRG18	S60	113 / 249	470 x 515 x 140 / 18.50 x 20.28 x 5.51	713 / 28.07	1.7	18 / 3960	900 / 1980

<sup>1)</sup> at 25 l/min. / 6.61 GPM

### Technical Drawing



### Bucket Set incl. SKP 16 / SKD 14 / SKK 14

Type	Self weight (approx. kg/lbs)	Width (mm/in)	Volume (litre/c.y.)	with Quick change adapter
SKP 16 Grading Bucket	500 / 1100	1600 / 63	600 / 0.78	S60
SKD 14 Backhoe Bucket (incl. teeth)	255 / 561	800 / 31.5	500 / 0.65	S60
SKK 14 Trench Bucket	140 / 308	500 / 19.7	300 / 0.39	S60

### Tiltrotator TR14NOX Mounting Options

Type	Upper bracket	Lower quick coupler
S-Coupler S-Lock	direct mount or S45/S50/Hydrema	S45/S50/ Hydrema
S-Coupler S-Lock	direct mount or S60	S60
Oilquick	direct mount or OQ45	OQ45
Oilquick	direct mount or OQ60-5	OQ60-5
Volvo/Bofors	direct mount or S1/NTP10/B20	S1/NTP10/B20
Kinshofer L-Lock	direct mount or KSW08	KMS08
Kinshofer L-Lock	direct mount or KSW08	KHS08
Kinshofer L-Lock	direct mount or KSW10	KMS10
Kinshofer L-Lock	direct mount or KSW10	KHS10
Kinshofer X-Lock	direct mount or CMX	CMX
Verachttert	direct mount or CW10	CW10
Verachttert	direct mount or CW20/CW30	CW20/CW30
Martin	direct mount or MH18/MH20	MH18/MH20
Liebherr	direct mount or SW33	SW33
Liebherr	direct mount or SW48	SW48