



DOHERTY
COUPLERS AND ATTACHMENTS
A KINSHOFER COMPANY

nox

Tiltrotators



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Turn effectivity in your direction!

The NOX Tiltrotator by KINSHOFER is one of the most effective tools for excavators with an operating weight of 3t up to 25t.

Its 360° endless rotation with a tilt angle of 2 x 50° turn your machine into a multi-functional carrier, enabling you to complete a variety of work in less time, and create a safe working area.

You also have the option of an electric feed-through for special safety quick couplers and tool recognition. The NOX Tiltrotators are already prepared for 2D-/3D excavator systems meaning your machine becomes a semi-automatic carrier.

Works in deep trenches, and under or between existing tubes and pipes with ease.

- + Strong, compact design
- + No hindering or protruding components [e.g. hydraulic cylinders], ensuring any risk of damage is low
- + Low overall height resulting in a high breakout force
- + Only 2 greasing points saving time and consumables
- + Low maintenance
- + Easy and fast installation
- + Low maintenance due to minimal wearing parts
- + High stability due to special cast housing
- + Integrated hydraulics to protect against damage



Fork Tines

Palletized or non-palletized, convert your excavator into a forklift.



Grabs

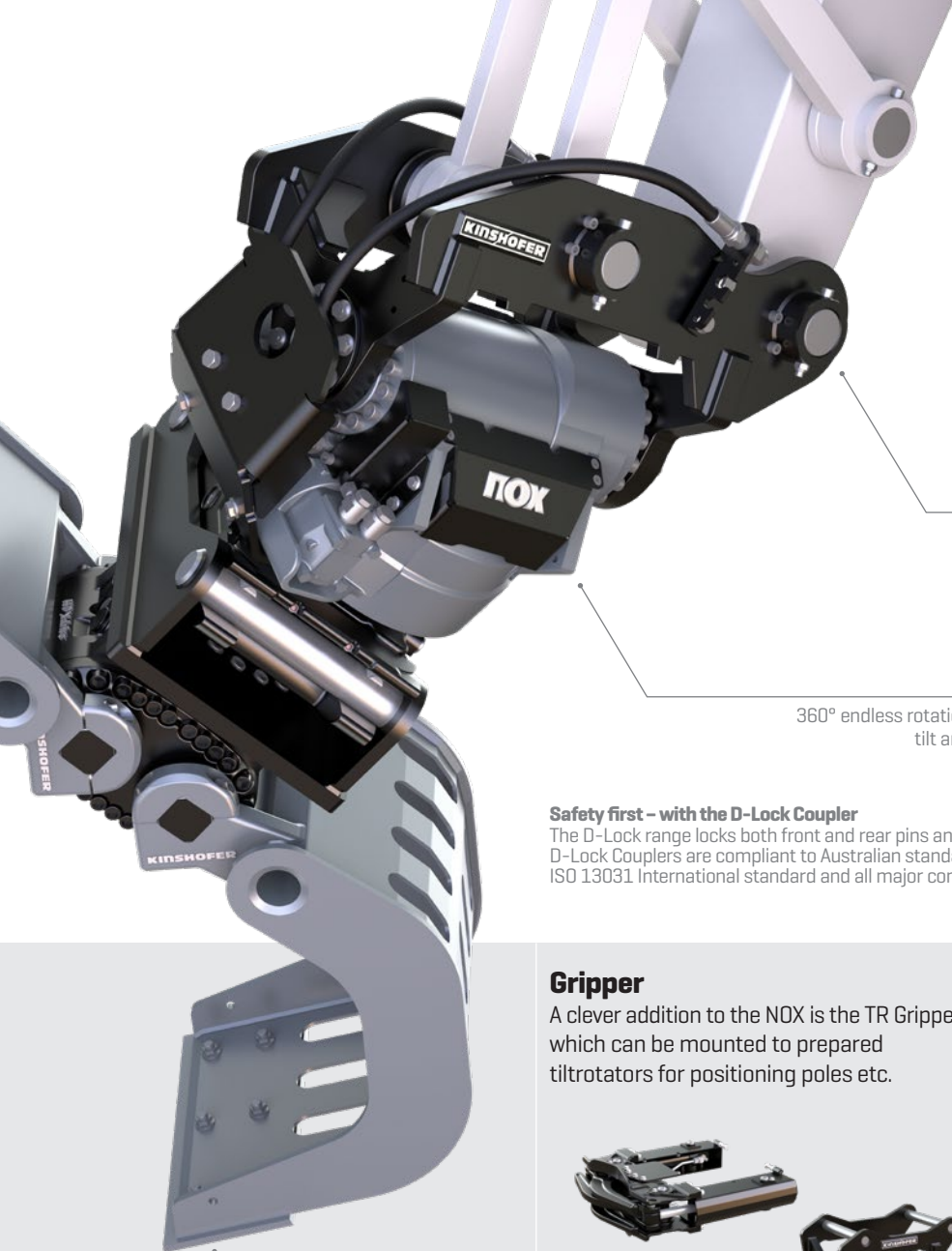
With over 45 years' experience in constructing grabs, the Kinshofer NOX can be combined with any type of grab. Using a HPX grab makes your NOX an absolute power package!



Buckets

The NOX can be used with all kinds of buckets including the narrow cable trench buckets as long as they do not protrude beyond the tiltrotator's width. The NOX can also excavate deep trenches that already have existing pipes.





Low overall height resulting in a high breakout force

360° endless rotation as well as a tilt angle of 2 x 50°

Safety first – with the D-Lock Coupler

The D-Lock range locks both front and rear pins and does not require a safety pin. D-Lock Couplers are compliant to Australian standard AS4772-2008, European EN474 standard, ISO 13031 International standard and all major contractor policies.

Gripper

A clever addition to the NOX is the TR Gripper which can be mounted to prepared tiltrotators for positioning poles etc.

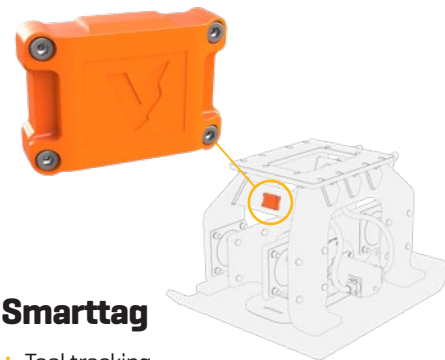


Multi-functional carrier

Quick Couplers

All in-house quick coupling systems such as S-Lock [incl. front lock], L-Lock, D-Lock can be mounted. The Doherty D-Lock is standard for the Australasian market.





Smarttag

- + Tool tracking
- + Tool automatization
- + Geometry and dynamic data
- + Fleet management



Rotation & Tilt Sensors

- + Overview of geometry data
- + NOXPROP autocalibration
- + Connection to 2D/3D excavator controls like e.g. Leica, Trimble, Topcon and Moba

Control system NOXPROP

The perfectly suited proportional and sensitive NOXPROP control provides for more safety and precision.

NOX tiltrotator, quick coupler and mounted attachments can now be controlled conveniently and effectively with the smart NOXPROP control.

Easily retrofitable for every excavator. Individual assignment of functions and easy menu navigation thanks to the attached touchscreen. Integrated GPS, LTE, Bluetooth and WiFi antennas link your machine with the digital working world. Connection to fleet management is realized when combined with the SmartTag for maximum integration and effectivity.

The system is pre-equipped for future assistance functions such as dynamic scales, 2D height and depth display, BPM and fleet management or copilot systems.



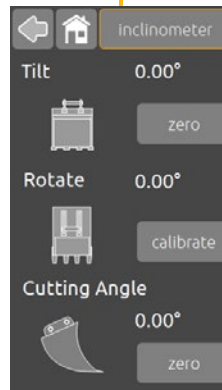
Touchdisplay

Features

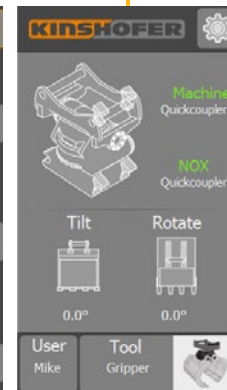
- + Optimum NOX performance due to perfectly adapted control
- + Autocalibration
- + Geometry data of the attachment
- + Interface to 2D/3D excavator control
- + Remote maintenance
- + Memory function for working profiles



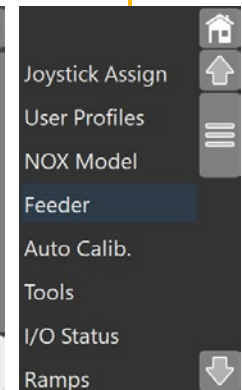
Individual assignment of functions



Geometry overview of the attachment



User overview



Easy menu navigation

Gripper



Universal Grab

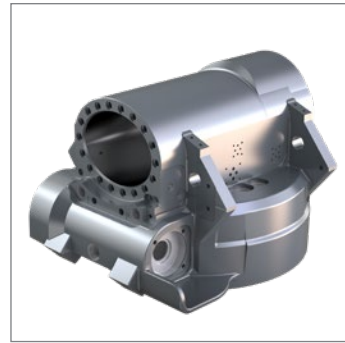


Fork Tines



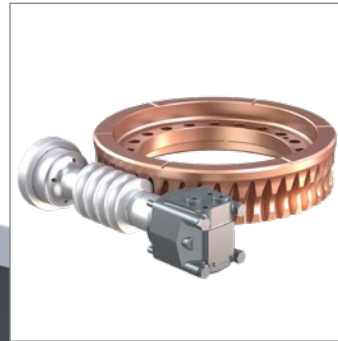
Cast Housing

High stability due to special alloy material, guaranteeing a long life even under the toughest conditions.



Worm Drive

Built for difficult tasks, the extremely robust drive is low maintenance.



Universal Joint

Whether you're using a front, side or backhoe bucket, the NOX provides precise positioning and backfilling.



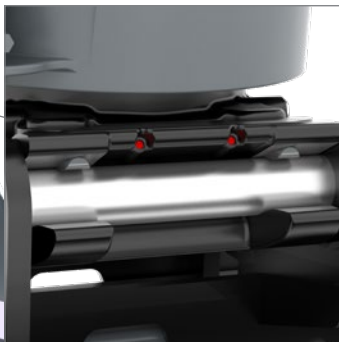
Elliptic Rotary Actuator

With no cylinders and a low design drive unit, it provides a low overall height as well as a narrow width. The tilt angle is also wider which allows greater flexibility.



Industrial Valves

Provides longevity thanks to the robust industrial valves.



S-Lock Front Lock

With the hydraulic S-Lock quick coupler, the mechanical dead point locking is provided by a hydraulic cylinder controlled from the cabin. An additional locking of the front pin [front lock] guarantees the highest possible safety standard. The mechanical S-Lock quick coupler by KINSHOFER is equipped with an easy yet very safe locking system that can be operated by a locking key. The Doherty D-Lock Coupler is fitted as standard for the Australasian market ensuring you can pick up on standard OEM attachments.

Bucket



Sleeper Layer



Drum Cutter



High Flow Swivel

For attachments with high oil flow.

Levelling Bar

Tilt towards success. It's as simple as that.



Savings

The NOX makes your excavator a multi-functional carrier machine.

- + Saves manpower and equipment on site.



Low Cost

Your task can be accomplished faster and without additional manpower. The repositioning of the carrier machine on site will often become redundant.

- + Allows for a more efficient and cost-effective operation.
- + With minimal greasing points and bearing bushes, the NOX is low-maintenance - saving on consumables, time and costs.



Profitability

Save up to 25% in time to complete a job.

- + Cost savings on staff and consumables, as well as minimised wear of the tool.
- + More projects can be completed due to the time savings.



Increased safety

With a large tilt range of 2 x 50° and 360° rotation, frequent repositioning or maneuvering becomes redundant.

- + Increased safety of the working environment.

TR-NOX Tiltrotators

Experience and innovation have led to one of the most advanced tools for excavators – the NOX: 360° endless rotation and a tilt angle of 2 x 50° make it a universal joint, allowing for a whole new range of applications. Combined with quick change system and various attachments this provides the highest efficiency at any construction site.

- + **Precision and safety** due to smooth proportional control
- + **No protruding parts:** excavate with a narrow bucket in small, deep canals, as well as under or in-between existing pipes
- + **Low maintenance:** worm drive runs in permanent greasing - with only a few greasing points
- + **High stability and long service life** provided by the special cast housing
- + **Low overall height** thanks to elliptic rotary actuator
- + **High and constant tilt force** due to cylinderless rotary actuator

Technical Data Tiltrotators

Type	Operating Weight Excavator [t]	Self Weight [KG]	Width 'A' [mm]	Length 'B' [mm]	Height 'C' [mm]	Recommended Bucket Width Max [mm]	Tilt Angle [°]
TR06NOX	3-6	206	205	570	466	1100	2 x 50
TR07NOX*	4-7	216	215	570	486	1200	2 x 50
TR11NOX	6-11	336	228	600	618	1400	2 x 50
TR14NOX	10-14	545	248	775	728	1600	2 x 50
TR19NOX	14-19	823	242	861	753	1700	2 x 50
TR25NOX	19-25	1114	260	956	874	2000	2 x 50

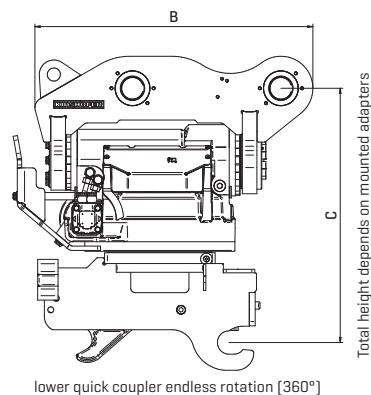
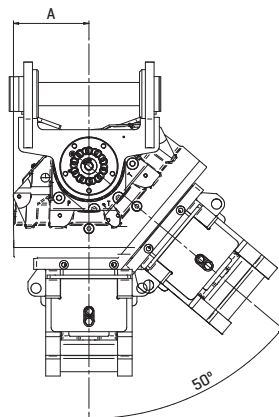
*TR07NOX presumably available from Q3/19

Standard package: tiltrotator, electric control system, upper bracket, lower quick coupler

Swivel

Type	TR06NOX			TR07NOX / TR11NOX / TR14NOX / TR19NOX / TR25NOX		
	DF10	DF4	CSP	DF10	DF4	CSP
Control system	DF10	DF4	CSP	DF10	DF4	CSP
Channels extra function	4	2	4	4	4	4
Channels quick coupler	2	2	2	2	2	2
Tank line	-	-	-	-	-	1
Drain line	-	-	-	1	1	1
Electric swivel (optional)	-	-	-	12 x 0,5	12 x 0,5	12 x 0,5

HDR240-80-TR25



Total height depends on mounted adapters

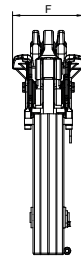
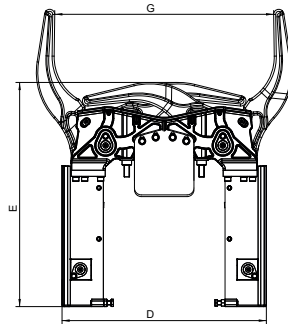


Accessories

Hydraulic Gripper module [Gripper]	Self weight [approx. kg]	Dimensions D x E x F ²⁾ [mm]	Opening max. G [mm]	Closing time ³⁾ [sec]	Closing force [kN]	Load capacity [kg]
TRG07	40	470 x 520 x 140	425	1,5	7,5	300
TRG11	80	600 x 660 x 210	645	1,3	10	500
TRG19	113	700 x 715 x 265	820	1,7	18	900
TRG25	195	895 x 760 x 295	1100	2,0	19,5	1400

²⁾ see technical drawing ³⁾ at 25 l/min

Gripper TRG11



Technical Data

Tiltrotator Type	TR06NOX		
Control system	Unit	DF10	DF4 CSP
Breaking force max. [ISO]	kN		35
Tilt moment	kNm		8,5
Rotation speed	l/min		9 at 40 l/min
Rotation torque	Nm		4500 constant at 360° endless
Oil flow extra function 1 & 2 max.	l/min		SD ¹⁾ : 35
Hydraulic pressure max.	MPa		25
Return line pressure max.	MPa		1

Tiltrotator Type	TR07NOX		
Control system	Unit	DF10	DF4 CSP
Breaking force max. [ISO]	kN		50
Tilt moment	kNm		10
Rotation speed	l/min		8,5 at 32 l/min
Rotation torque	Nm		4600 constant at 360° endless
Oil flow extra function 1 & 2 max.	l/min		SD ¹⁾ : 70/30
Hydraulic pressure max.	MPa		25
Return line pressure max.	MPa		2,5

NOX Tiltrotators

Tiltrotator Type		TR11NOX		
Control system	Unit	DF10	DF4	CSP
Breaking force max. [ISO]	kN		75	
Tilt moment	kNm		16	
Rotation speed	l/min		8,5 at 40 l/min	
Rotation torque	Nm		6400 constant at 360° endless	
Oil flow extra function 1 & 2 max.	l/min		SD ¹⁾ : 90/30	
Hydraulic pressure max.	MPa		27	
Return line pressure max.	MPa		2,5	

Tiltrotator Type		TR14NOX		
Control system	Unit	DF10	DF4	CSP
Breaking force max. [ISO]	kN		110	
Tilt moment	kNm		26	
Rotation speed	l/min		8,5 at 45 l/min	
Rotation torque	Nm		7800 constant at 360° endless	
Oil flow extra function 1 & 2 max.	l/min	SD ¹⁾ : 70/30 HF ²⁾ : 70/120	SD ¹⁾ : 70/30	SD ¹⁾ : 70/30 HF ²⁾ : 70/120
Hydraulic pressure max.	MPa		30	
Return line pressure max.	MPa		2,5	

Tiltrotator Type		TR19NOX		
Control system	Unit	DF10	DF4	CSP
Breaking force max. [ISO]	kN		150	
Tilt moment	kNm		34	
Rotation speed	l/min		8,5 at 50 l/min	
Rotation torque	Nm		8800 constant at 360° endless	
Oil flow extra function 1 & 2 max.	l/min	SD ¹⁾ : 70/30 HF ²⁾ : 70/120	SD ¹⁾ : 70/30	SD ¹⁾ : 70/30 HF ²⁾ : 70/120
Hydraulic pressure max.	MPa		30	
Return line pressure max.	MPa		2,5	

Tiltrotator Type		TR25NOX		
Control system	Unit	DF10	DF4	CSP
Breaking force max. [ISO]	kN		170	
Tilt moment	kNm		44	
Rotation speed	l/min		8,5 at 60 l/min	
Rotation torque	Nm		9300 constant at 360° endless	
Oil flow extra function 1 & 2 max.	l/min	SD ¹⁾ : 70/30 HF ²⁾ : 70/150	SD ¹⁾ : 70/30	SD ¹⁾ : 70/30 HF ²⁾ : 70/150
Hydraulic pressure max.	MPa		30	
Return line pressure max.	MPa		2,5	

¹⁾ SD = standard-swivel ²⁾ HF = high-flow-swivel



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