



Cat[®] Tilt Rotate Systems

MINI HYDRAULIC EXCAVATORS

Cat[®] Tilt Rotate Systems are an industry-first with fully integrated superior technology into your Next Generation 306 CR, 307.5, 308, 308.5, 309 or 310 Mini Hydraulic Excavator. Tiltrotators will help you get the job done faster with the quality you expect from Caterpillar. Tilt and rotate to reach at any angle without the need to reposition your machine. Tiltrotators are productive, easy-to-use, and provide a versatile solution to your operation.

Features:

Applications

- Road Work and Railroads – Building angled dikes, trenches and drainage. Manipulating beams and poles or special tools for railroad repair.
- Earthmoving or General Construction – Grading, digging, trenching and pipe positioning, digging under square pipes, restoration or backfilling, landscape, foundation work, digging in corners.
- Maintenance – Sweeping, tree felling, pick and sort material.

Intuitive

- When compared to others, installation is also an industry-first with 100% integration in as little as 3 to 4 hours.
- Both the left and righthand joysticks control all machine and tiltrotator functionalities.
- Joysticks and display monitor work together.
- A single grease point provides grease to all joints requiring lubrication.
- Compatible with most grade control systems.

Versatile

- 360 degrees of continuous rotation and tilt up to 40 degrees left or right.
- From bucket to grapple from digging into front shovel mode.
- Capability to run hydro-mechanical tools, such as hammers, augers, cold planers, etc.
- Available with or without grapple.

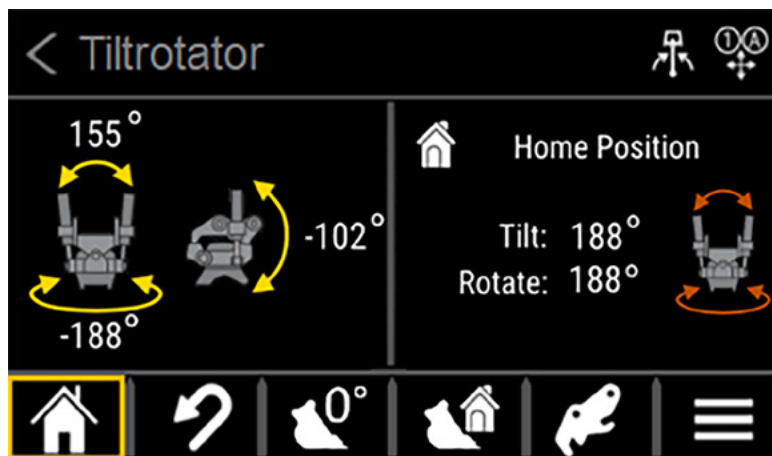
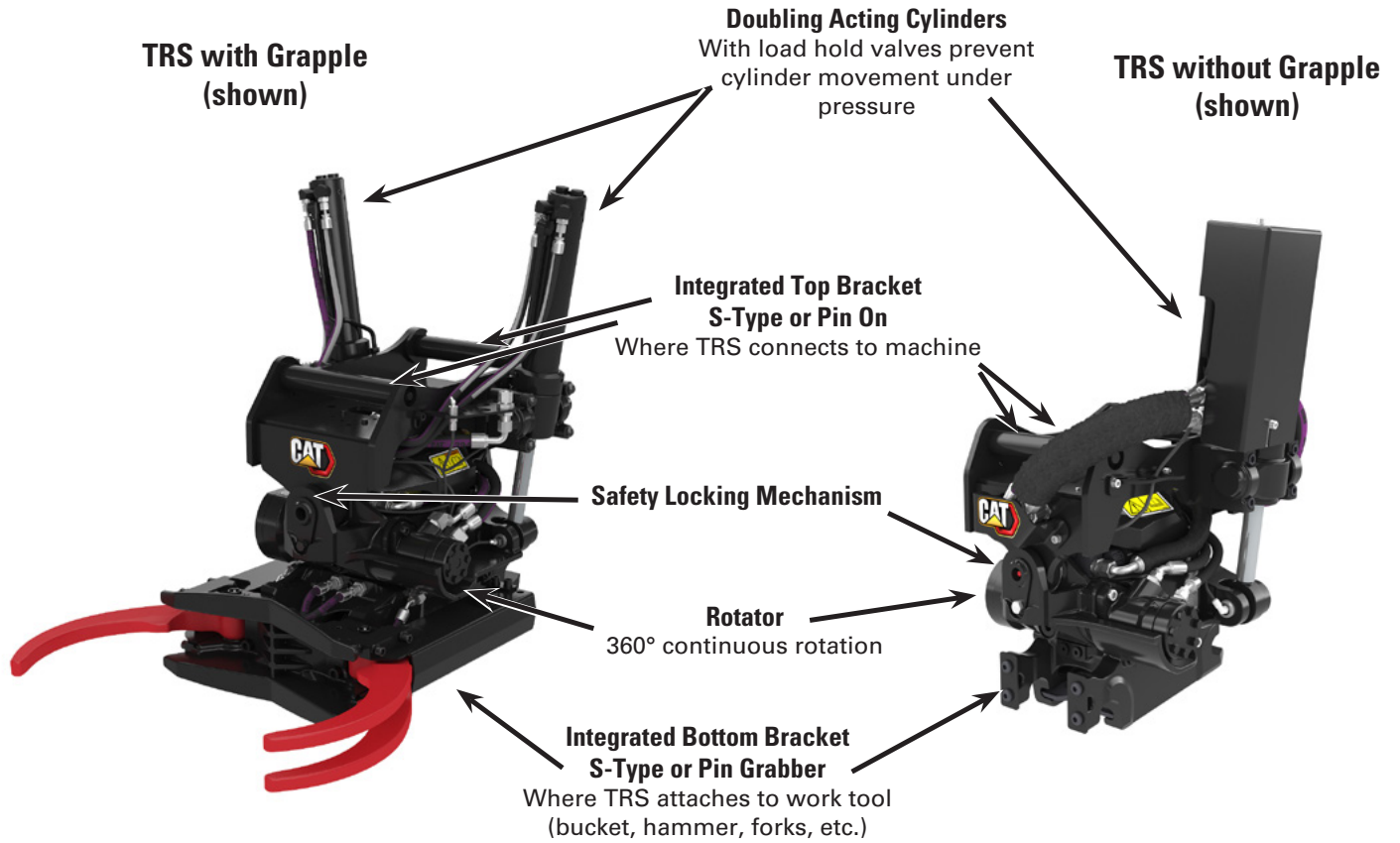
Technology

- Fully integrated software.
- Automatically spread material evenly and quickly with the Bucket Shake function.
- Return the tiltrotator to a user-defined position with the press of a button using the Home function.
- Triangular movement control lets you tilt, rotate and use auxiliary hydraulics.
- Reliable locking control system provides audible signals and visual in-cab indicators to confirm the bottom coupler is engaged.
- Optional positioning software informs operator of attachment's position by standard equipped monitoring sensors.

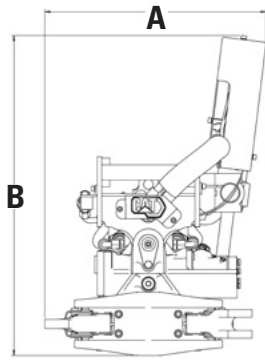
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Compatibility

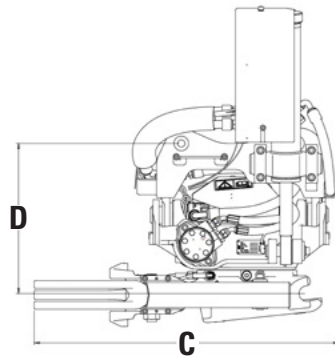
Model	Machines
TRS6	306 CR
TRS8	307.5, 308, 309, 310



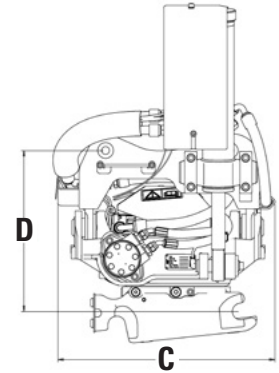
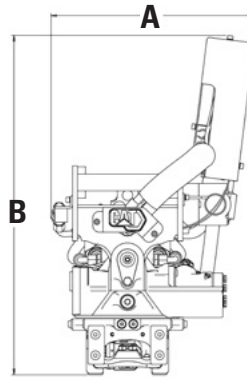
Specifications



TRS6 with Grapple



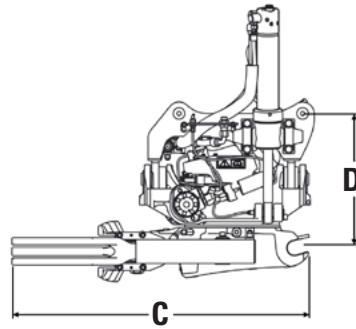
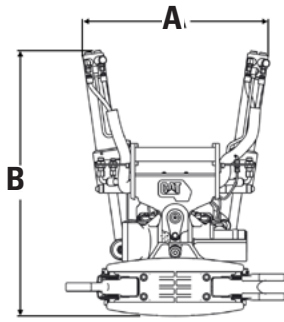
TRS6 without Grapple



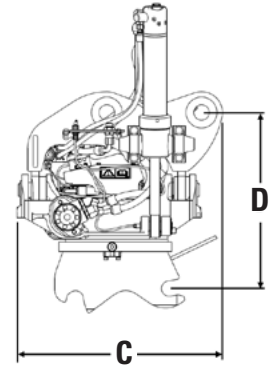
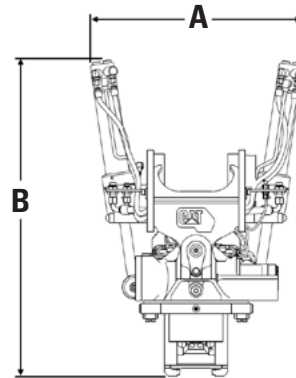
Model	TRS6		
	with Grapple	without Grapple	
Top Interface	S-Type or Pin On		
Bottom Interface	S-Type		
A Width	mm (in)	574 (22.6)	490 (19.3)
B Height	mm (in)	819 (32.2)	819 (32.2)
C Length	mm (in)	609 (24)	526 (20.7)
D Pin to Pin Distance	mm (in)	S-Type – 389 (15.3) Pin On – 419 (16.5)	S-Type – 389 (15.3) Pin On – 419 (16.5)
Weight	kg (lb)	245 (540)	210 (463)
Machine Class		6 Ton	
Standard Bucket Size	m ³ (ft ³)	0.25 (8.8)	
Maximum Bucket Width	mm (in)	1200 (47)	
Maximum Break Out Force	kN (lbf)	50 (11,240)	
Tilt Angle (Left / Right)		40 degrees	
Rotation Speed – 7sec for 1 Full Rotation at flow		30 L/min (8 gpm)	
Working Pressure	kPa (psi)	25 000 (3,626)	
Optimal Hydraulic Flow	L/min (gpm)	45-80 (12-21)	
Lubrication Points		1	
Turning Torque		3900 N-m at 25 000 kPa 2,876 lb-ft at 3,626 psi	
Tilting Torque	kN-m (lb-ft)	14.4 (10,627)	

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Specifications



TRS8 with Grapple



TRS8 without Grapple

Model	TRS8				
	with Grapple		without Grapple		
Top Interface	S-Type		S-Type	Pin On	Pin On
Bottom Interface	S-Type		S-Type	Pin Grabber	Pin Grabber
A Width	mm (in)	678 (26.4)	678 (26.4)	678 (26.4)	678 (26.4)
B Height	mm (in)	958 (37.7)	945 (37.2)	1001 (39.4)	1044 (41.1)
C Length	mm (in)	1053 (41.5)	608 (23.9)	665 (26.2)	665 (26.2)
D Pin to Pin Distance	mm (in)	467 (18.4)	467 (18.4)	570 (22.4)	594 (23.4)
Machine Class		7 – 10 Ton	7 – 10 Ton	8 Ton	10 Ton
Weight	kg (lb)	360 (764)	310 (683)	310 (683)	310 (683)
Standard Bucket Size	m ³ (ft ³)	0.5 (17.7)			
Maximum Bucket Width	mm (in)	1500 (59)			
Maximum Break Out Force	kN (lbf)	78 (17,535)			
Tilt Angle (Left / Right)		40 degrees			
Rotation Speed – 7sec for 1 Full Rotation at flow		50 L/min (13 gpm)			
Working Pressure	kPa (psi)	25 000 (3,626)			
Optimal Hydraulic Flow	L/min (gpm)	45-75 (12-20)			
Lubrication Points		1			
Turning Torque		6600 N-m at 25 000 kPa 4,868 lb-ft at 3,626 psi			
Tilting Torque	kN-m (lb-ft)	26.5 (19,545)			

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(Global)

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Cat[®] Tiltrotators

*TRS10, TRS14,
TRS18, TRS23*

Cat[®] Tiltrotators help you get the job done faster with the quality you expect from Cat products. Integrated to your excavator, Tiltrotators are productive, easy-to-use, and add value to your operation. Tiltrotators are a versatile solution providing enhancements to your operation.

Configurations and features may vary by region. Please consult your Cat dealer for availability in your area.

Seamless Integration

- When used with wheeled excavators, tiltrotators connect to the machine's HP2 circuit leaving the HP1 circuit for an additional attachment ensuring smooth hydraulic flow to both.
- Display function integrates into the machine's monitor for next generation excavators. For F Series, retrofit kits come with an additional monitor.
- Positioning system connects to Cat Grade with 3D.

Up to 13 Percent More Productivity

- Controls allow for simultaneous tilt, rotation, and machine movement.
- Short height maintains consistent breakout force for digging.
- Hydraulic quick connect changes attachments in seconds.
- Do more work with less attachments and machines.

Easy Operation

- Machine joysticks include Tiltrotator controls, preventing delay between operator command and action.
- Oil-filled gear box keeps gears constantly lubricated, extending the life of the rotor.
- Lubrication System has one grease point, which can be attached to the machine's greasing.
- Innovative Control System has four unique operator settings.

Enhanced Versatility

- 40° left and right tilt, plus 360° rotation adds capability to fixed attachments.
- Use grapple module without removing bottom attachment.
- Mixed configurations enable use of multiple attachment interfaces.

Stay Safe

- Grapple module is faster and safer than people manually moving heavy objects.
- Operator stays in cab while switching attachments.
- Double acting tilt cylinders have built-in load holding valves in the event of pressure loss.
- Curl to Unlock technology verifies the operator has the coupler or tiltrotator curled in the correct position before it is allowed to unlock during the process of switching attachments. This helps keep your attachments secure while working.

Configuration Options

- Meet your usage and attachment interface needs with a variety of top and bottom configuration options for your tiltrotator depending on your preferred coupler system.
- Tiltrotators with a pin-on top are ideal when the tiltrotator is used regularly and compatible attachments are switched out on the bottom side.
- Options with a specific coupler interface on top are used with a standard coupler so the tiltrotator can be detached and larger or higher flow requirement attachments can be used with the standard coupler.
- Specific coupler interfaces may require attachments or brackets for attachments with that interface.
- The following are the current available interfaces for tiltrotators:
 - Pin-on
 - CW Dedicated
 - S Type
 - Hydraulic Connecting S Type



Cat® Tiltrotators

Specifications							
Model	Excavator Class tons	Rotation Speed seconds per 1 full rotation	Tilt Angle Range ± degrees left/right	Recommended Maximum Oil Flow		Working Pressure	
				l/min	gpm	MPa	psi
TRS10	11-16	7	40	91	24.0	25	3,626
TRS14	14-19	7	40	111	29.3	25	3,626
TRS18	18-24	7	40	121	32.0	25	3,626
TRS23	23-32	8	40	134	35.4	25	3,626

Weights and Dimensions dependent on Tiltrotator configuration. Configuration options vary by model. See Technical Specifications for more details.

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GEHQ9281-04 (06-2022)
Replaces GEHQ9281-03
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