

# GROVE<sup>®</sup>

## TMS900E

### product guide

#### features

- 90 ton (80 mton) capacity
- 37-142 ft (11.2 - 43.2 m) 5 section full power boom
- Patented TWIN-LOCK boom pinning system
- 33 - 56 ft (10 - 17m) bifold lattice swingaway extension
- Optional 33 - 56 ft (10 - 17 m) hydraulically offsettable bifold swingaway
- Optional lattice insert extensions for a 237 ft (72.2 m) maximum tip height
- Grove MEGAFORM boom
- Hydraulically tiltable cab up to 15°
- Up to 31,500 lbs hydraulically installed/removed counterweight
- Cummins 6 cylinder, turbo-charged after cooled diesel engine
- 65 mph (104 kph) travel speed



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Truck Mounted Crane

\*Product may be shown with optional equipment.

## features

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**A powerful superstructure on a powerful chassis makes this 90 US ton truck crane unbeatable on the road and on the jobsite.**



The superstructure features a full power five section MEGAFORM boom that can reach to a maximum tip height of 150 ft. The TWIN-LOCK boom pinning system provides pre-selection of boom extension modes to efficiently pin boom sections automatically.



Front and rear air over walking beam suspension provides a smooth ride at 65 mph. Aluminum wheels, fenders and decking are also standard features.



Up to 31,500 lbs of counterweight can be power installed and removed from the superstructure cab, making transporting a breeze.



A bi-fold swingaway lattice extension easily stows on the side of the base boom for easy transport. The choice of a manual or optional hydraulically offsettable extension is available. To take

it even further, up to two additional extension inserts can be added to provide up to 237 ft. of tip height.



Crane functions are controlled by ECOS (Electronic Crane Operating System) with CAN-BUS. The EKS4 load moment indicator provides detailed feedback and control of the cranes operating functions.

Electronically controlled ISM 450 diesel engine delivers plenty of power on and off the jobsite.



Two-stage inverted jack outriggers provide 3 position settings – 0%, 50% and 100%.



# specifications

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## Superstructure



### Boom

37 ft. - 142 ft. (11.2 m - 43.2 m) five section, full power boom with patented TWIN-LOCK™ boom pinning system. Maximum tip height: 150 ft. (45.8 m). Trailing Boom float kit



### Boom Nose

Six nylatron sheaves, mounted on heavy duty tapered roller bearings with removable pin-type rope guards. Quick reeve boom nose. Removable auxiliary boom nose with removable pin type rope guard.



### Boom Elevation

Single lift cylinder with safety valve provides boom angle from -3° to +82°.



### Offsettable Lattice Extension

33 ft. - 56 ft. (10 m - 17 m) bifold lattice swingaway extension manual offsettable from 0°, 20°, 40°. Maximum tip height: 204 ft (62.3 m)



### \* Hydraulically Offsettable Lattice Extension

33 ft. - 56 ft. (10 m - 17 m) bifold lattice swingaway extension hydraulically offsettable and luffing under load from 5° - 40°. Controlled from the crane cab. Maximum tip height: 204 ft (62.3 m)



### \* Lattice Jib Extensions

Two 16 ft. (5 m) inserts for use with lattice swingaway extension to increase length up to 72 ft. (22 m) or 88 ft. (27 m). Maximum tip height: 237 ft (72.2 m)



### Load Moment & Anti-Two Block System

Load moment and anti-two block system with audio/visual warning and control lever lockout provides electronic display of boom angle, length, radius, tip height, relative load moment, maximum permissible load, load indication and warning of impending two-block condition.



### Cab

All aluminum construction cab with acoustical lining is hydraulically tilttable (-5° to +15°) and includes tinted safety glass, adjustable operator's seat with hydraulic suspension, sliding windows in side and cab rear, hinged front window with wiper, sunvisor and window shade. Other features include diesel heater/defroster, armrest integrated crane controls, and ergonomically arranged instrumentation.



### Crane Control System

Full electronic control of all crane movements using electrical control levers with automatic reset to zero. Controls are integrated with the LMI and engine management system by CAN-BUS. ECOS system with graphic display.



### Swing

Axial piston fixed displacement motor and planetary gear box. Infinitely variable to 1.7 rpm. Holding brake and service brake.



### Counterweight

12,900 lbs. (5 851 kg) consisting of various sections with hydraulic installation/removal system controlled from the superstructure cab. An optional heavy counterweight package is available consisting of an additional 7,600 lbs and 11,000 lbs for a total of 31,500 lbs of counterweight.



### Hydraulic System

2 separate circuits, 1 axial piston variable displacement pump (load sensing) with electronic power limiting control and 1 gear pump for swing. Combined capacity is 122.2 gpm (462 l/min) Dual thermostatically controlled oil coolers keep oil at optimum operating temperature. Tank capacity: 134 gal. (508 l)



### Hoist

Main and auxiliary hoist are powered by axial piston motor with planetary gear and brake. "Thumbthumper" hoist drum rotation indicator alerts operator of hoist movement.

	Main	Auxiliary
Line length:	720 ft. (220 m)	720 ft. (220 m)
Rope diameter:	16 mm	16 mm
Line speed:	410 ft./min. (125 m/min)	410 ft./min. (125 m/min)
Line pull:	11,240 lbs. (50 kN)	11,240 lbs. (50 kN)

\*Denotes optional equipment

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# specifications

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## Carrier



### Chassis

Triple box section, four-axle carrier, fabricated from highstrength, low alloy steel with towing and tie-down lugs.



### Outrigger System

Four hydraulic telescoping, two-stage, double box beam outriggers with inverted jack and integral holding valves. Quick release type outrigger floats 24 in. (610 mm) diameter. Three position setting with fully extended, intermediate (50%) extended and fully retracted capacities. Maximum outrigger pad load: 100,000 lbs. (45 360 kg).



### Outrigger Controls

Located in the superstructure cab and on either side of carrier. Requires two hand operation. Crane level indicator (sight bubble) on right side console.



### Engine

Cummins ISM450 six cylinder, turbo-charged and after cooled diesel engine, 661 cu. in. (10.8 L), 450 bhp (336 kW) (gross) @ 1800 RPM. Maximum torque 1,450 ft. lbs. (1966 Nm) @ 1200 RPM. Equipped with engine brake and audio-visual engine distress system, and ether cold start aid.



### Fuel Tank Capacity

100 gallons (376 L).



### Transmission

Roadranger 11 speeds forward, 3 reverse. Drive 8 x 4 x 4.



### Steering

Front axle, single circuit, mechanical steering with hydraulic power assist. Turning radius: 45' 3".



### Axles

Front: (2) beam-type steering axles, 84 in. (2.13 m) track. Rear: (2) single reduction drive axles, 75.06 in. (1.89 m) track. Inter-axle differential locks.



### Brakes

S-cam, dual air split system operating on all wheels. Spring-applied, air released parking brake acting on rear axles. Air dryer.



### Suspension

Front: Walking beam with air bags and shock absorbers. Rear: Walking beam with air bags and shock absorbers.



### Tires

Front: 445/65R 22.5 Goodyear G286, tubeless, mounted on aluminum disc wheels. Rear: 315/80R 22.5 Goodyear G286, tubeless, mounted on aluminum disc wheels.



### \*Optional Tires

Front: 445/65R 22.5 Bridgestone M844F, tubeless. 445/65R 22.5 Michelin XZY (WB), tubeless. Rear: 315/80R 22.5 Bridgestone M843, tubeless. 315/80R 22.5 Michelin XZY-1 tubeless.



### Lights

Full lighting package including turn indicators, head, tail, brake, and hazard warning lights.



### Cab

One man design, all steel fabricated with acoustical lining and tinted safety glass throughout. Deluxe fabric covered seat with air height adjustment. Complete driving controls and engine instrumentation including tilt telescope steering wheel, tachometer, speedometer, voltmeter, water temp., oil pressure, fuel level, air pressure gauge with A/V warning and engine high temp./low oil pressure A/V warning. Other standard items include hot water heater/defroster, electric windshield wash/wipe, fire extinguisher, seat belt, door lock.



### Electrical System

Two 12 V - maintenance free batteries provides 24 V electrical system. Standard battery disconnect.



### Maximum Speed

65 MPH (104 kph).



### Gradeability (Theoretical)

70%.

## Miscellaneous Standard Equipment

Aluminum fenders with rear storage compartments; dual rear view mirrors; electronic back-up alarm; sling/tool box; tire inflation kit; air cleaner restriction indicator; block and ball stowage; aluminum wheels.

## \* Optional Equipment

\*Flashing Light Package (Includes amber strobe for superstructure and carrier cabs).

\*Air conditioning.

\*Hookblocks

\*Rear headache ball stowage

\*Pintle hook (rear).

\*Cross axle differential locks.

\*Trailing Boom Package

\*Aluminum outrigger pads.

\*Air horn

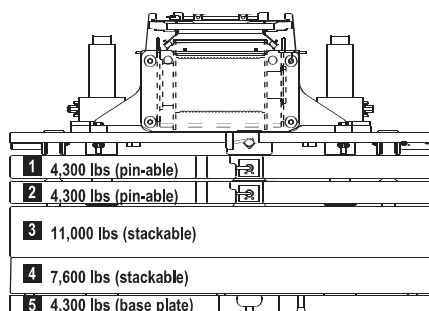
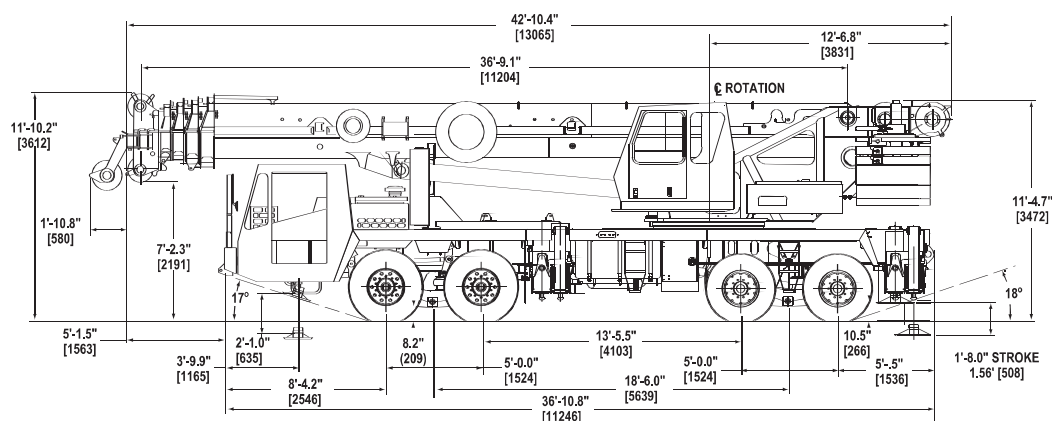
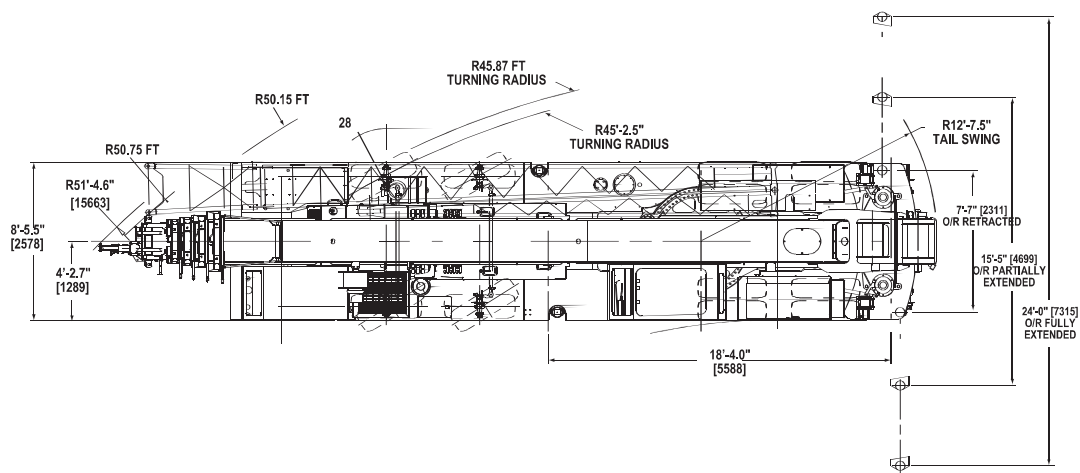
\*Heavy Counterweight package

\*Rear Chassis counterweight stowage bracket

*\*Denotes optional equipment*

# dimensions

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	1	2	3	4	5
Zero					
4,300 lbs	●				
8,600 lbs	●				●
12,900 lbs	●	●			●
20,500 lbs	●	●		●	●
27,200 lbs		●	●	●	●
31,500 lbs	●	●	●	●	●

Counterweight Configuration							
	31,500	27,200	20,500	12,900	8,600	4,300	0
Main Boom	✕ ■	✕ ■	✕ ■	✕ ■	✕ ■ ●	✕ ■ ●	✕ ■ ●
33 ft. Swingaway	✕ ■	✕ ■	✕ ■	✕ ■	✕ ■	✕ ■	
56 ft. Swingaway	✕ ■	✕ ■	✕ ■	✕ ■	✕ ■	✕ ■	
72 ft. Swingaway	✕	✕	✕	✕			
88 ft. Swingaway	✕	✕	✕	✕			

Outrigger span- 100%: ✕ 50%: ■ 0%: ●

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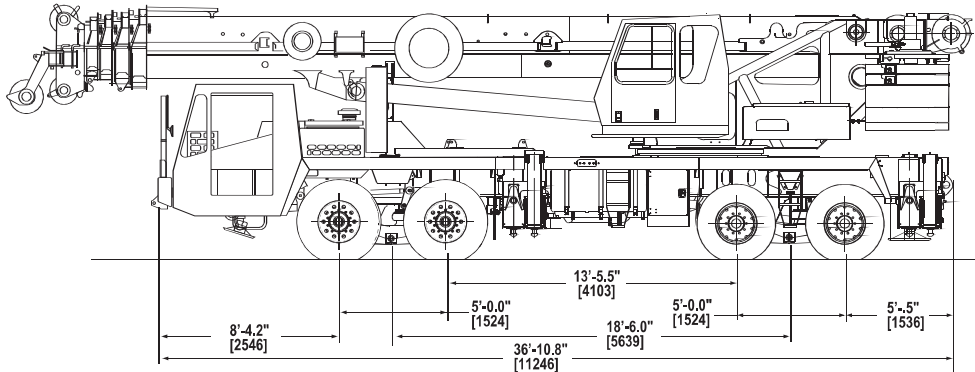
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# travel proposals

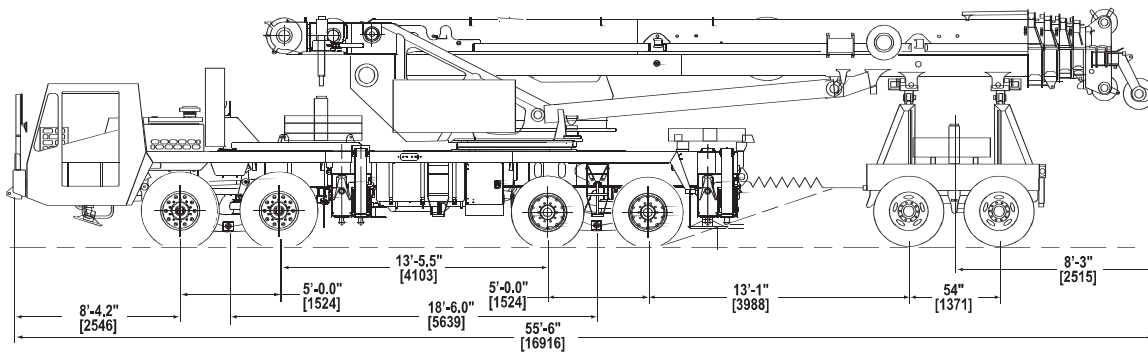
## Boom over front

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Unit equipped with:	Gross (lb.)	Front (lb.)	Rear (lb.)
Basic machine including 142 ft. main boom, main and auxiliary hoists with rope, no removable counterweight and driver.	79,943	39,461	40,482
Add 4,300 lb. slab on superstructure.	4,300	-1,295	5,595
Add 4,300 lb. (baseplate) on carrier front deck.	4,300	3,232	1,068
Add 7,600 lb. slab on carrier front deck.	7,600	5,712	1,888
Add manual offset swingaway.	2,890	2,920	-30
Add hydraulic luffing swingaway.	3,070	3,077	-7
Add 6 ton headache ball (stowed in front trough).	315	464	-149
Add 6 ton headache ball (stowed on rear chassis mount), includes mount weight.	375	-166	541
Add 55 ton hookblock (stowed in front trough).	1,500	2,127	-627

## Trailing boom dolly



Unit equipped with:	Gross (lb.)	Front (lb.)	Rear (lb.)	Dolly (lb.)
Basic machine including 142 ft. main boom, main and auxiliary hoists with rope, hydraulic luffing bifold swingaway, no removable cwt, 6 ton headache ball (front chassis stowage), 55 ton hookblock (front chassis stowage), driver and 6,000 lb. split tower boom dolly.	90,858	37,321	31,232	22,306
Add (2) 4,300 lb. slabs to superstructure or front chassis storage, (1) 4,300 lb. slab on rear chassis storage. 7,600 lb. slab, 6 ton headache ball and 55 ton hookblock on dolly (20,500 lb. cwt).	111,358	39,899	39,738	31,721
Add (2) 4,300 lb. slabs to superstructure or front chassis storage, 7,600 lb. slab on rear chassis storage, (1) 4,300 lb. slab and 11,000 lb. slab on dolly. 6 ton headache ball and 55 ton hookblock on dolly (31,500 lb. cwt).	122,358	42,906	40,032	39,421

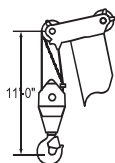
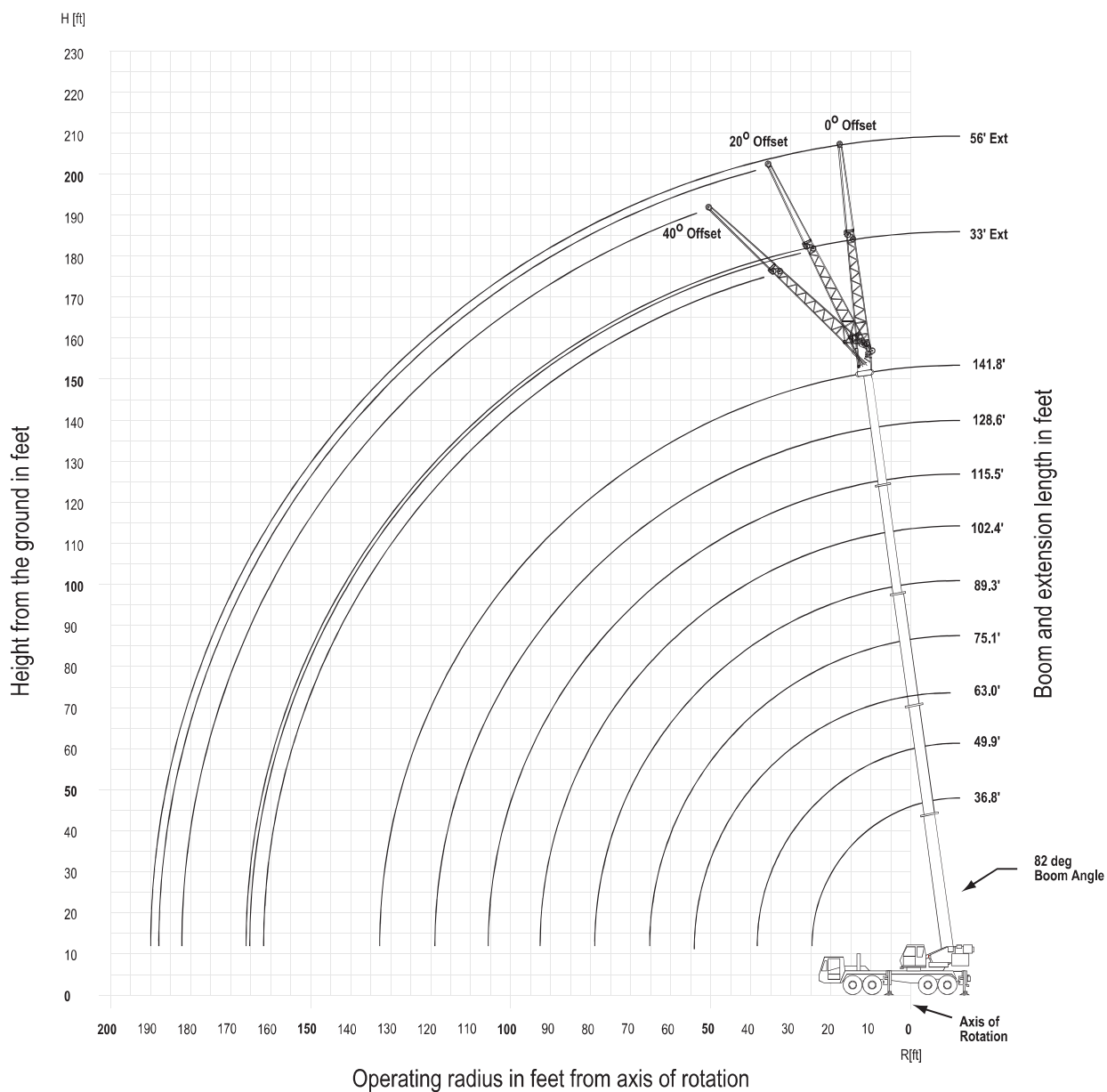
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# working range

37-142' main boom + 33-56' lattice extension

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Dimensions are for largest Grove furnished hookblock and headache ball, with anti-two block activated.

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THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

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