

**TRAILER MATE  
SPECIFICATIONS**

**TM50 2-Wheel Drive  
3-Wheel Drive**



QUANTUM

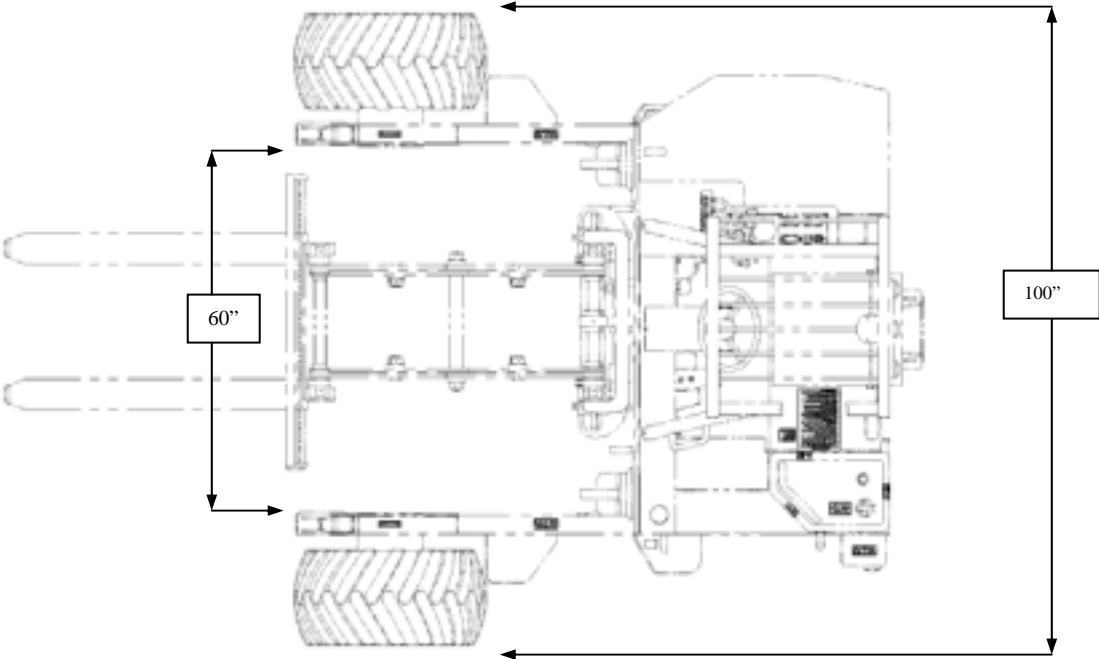
# TABLE OF CONTENTS

<b>TM50 2-WD / 3-WD Specifications / Dimensions .....</b>	<b>1</b>
<b>General Specifications .....</b>	<b>2</b>
<b>Weights / Travel Speed / Tilt Table Degrees / Gradeability .....</b>	<b>3</b>
<b>Gradeability conversion Table .....</b>	<b>4</b>
<b>Percent Grade vs. Degree of Angle .....</b>	<b>5</b>
<b>Recommended Spare Parts List .....</b>	<b>6</b>
<b>Capacity Table .....</b>	<b>7</b>
<b>Component Specifications .....</b>	<b>8 - 13</b>
<b>TM50 3WD with Flared Fender Option .....</b>	<b>14 - 15</b>

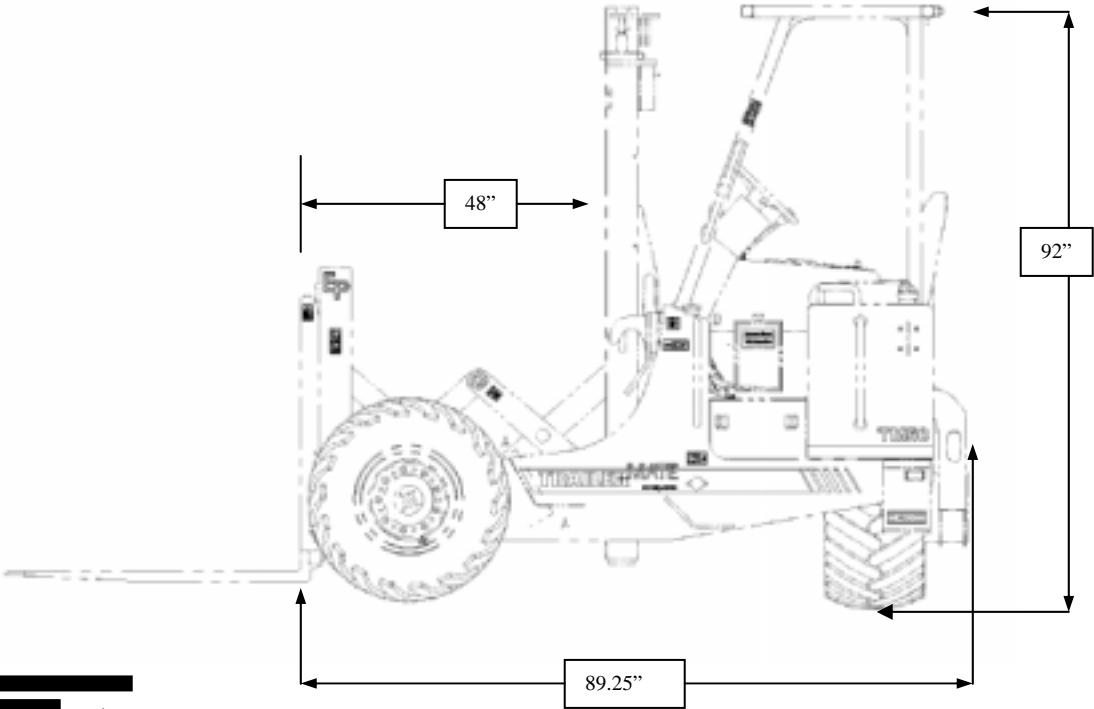


**COMPONENT SPECIFICATIONS**

**TM50 2-WD / 3-WD  
DIMENSIONAL DATA**



**Ground Clearance – 8.75"**



## GENERAL SPECIFICATIONS

**TM50 2-WD / 3-WD**

**SPECIFICATIONS**



## GENERAL SPECIFICATIONS

Weight of Unit with the following Masts (31" x 15.5" Tires)		
Mast	3-WD	2-WD
72"	5310 lbs.	5,160 lbs.
96"	5500 lbs.	5,350 lbs.
120"	5640 lbs.	5,490 lbs.
144"	6000 lbs.	5,850 lbs.

Travel Speeds - Both 3WD & 2WD		
Model	Forward	Reverse
3-WD	9.0 mph (14.5 km/h)	5.9 mph (9.5 km/h)
2-WD	9.0 mph (14.5 km/h)	5.9 mph (9.5 km/h)

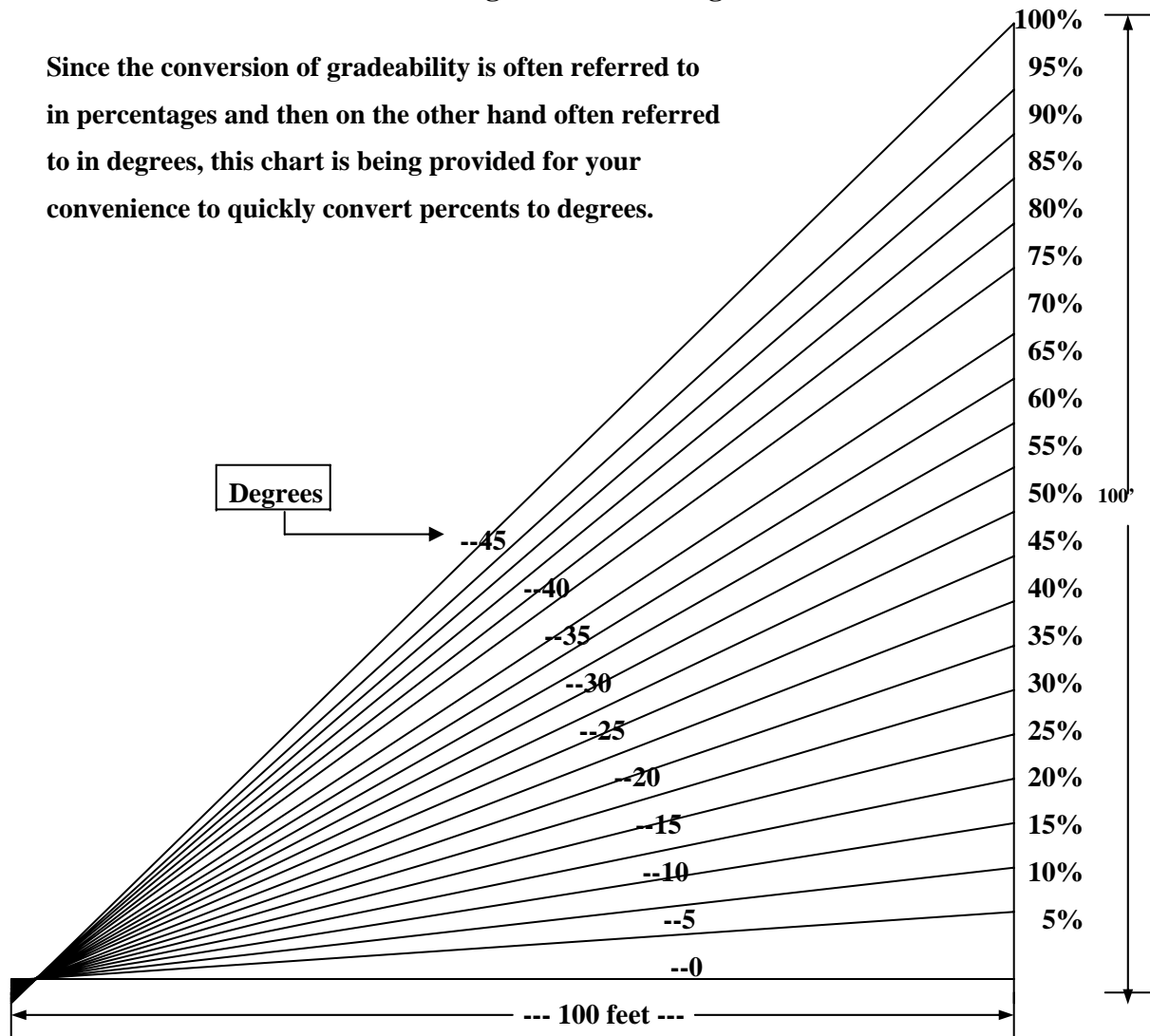
Tilt Table Degrees (per ASME B56.6)				
Platform				
Test	Operation	Scope	Angle	Load
Longitudinal Capacity	Stacking	6%	3.4 degrees	Rated
Longitudinal Capacity	Traveling	22%	12.4 degrees	Rated
Lateral	Stacking	10%	5.7 degrees	Rated Capacity
Lateral	Traveling	40%	21.8 degrees	No Load
Lateral	Stacking	10%	5.7 degrees	No Load

Gradeability (120" Mast)					
Configuration (2 Speed)	Gradeability (%)	Speed (mph)	Left Hand Ratio	Right Hand Ratio	Rear Ratio
Low (3-WD)	51%	2.4	24.85	24.85	24.85
High (2-WD)	31%	3.6	24.85	24.85	0

# GRADEABILITY

## Conversion Table Degrees to Percentage

Since the conversion of gradeability is often referred to in percentages and then on the other hand often referred to in degrees, this chart is being provided for your convenience to quickly convert percents to degrees.



**Percent Grade  
vs.  
Angle**

Percent of Grade	Angle
1	0 degree 35'
2	1 degree 9'
3	1 degree 44'
4	2 degrees 18'
5	2 degrees 52'
6	3 degrees 27'
7	4 degrees 1'
8	4 degrees 35'
9	5 degrees 9'
10	5 degrees 43'
11	6 degrees 17'
12	6 degrees 51'
13	7 degrees 25'
14	7 degrees 59'
15	8 degrees 32'
16	9 degrees 6'
17	9 degrees 39'
18	10 degrees 13'
19	10 degrees 46'
20	11 degrees 19'
21	11 degrees 52'
22	12 degrees 25'
23	12 degrees 58'
24	13 degrees 30'
25	14 degrees 3'
26	14 degrees 35'
27	15 degrees 7'
28	15 degrees 39'
29	16 degrees 11'
30	16 degrees 42'
35	19 degrees 18'
40	21 degrees 49'
45	24 degrees 14'
50	26 degrees 34'
55	28 degrees 49'

## Recommended Spare Parts List

Part Number	Description	Per truck Quantity	Quantity Per Machine
60238	BATTERY – 12V	1EA	1
63741	FILTER – TRANS	1EA	1
60369	FILTER – HYD	1EA	1
62274	FILTER – ENGINE OIL	1EA	2
62685	FILTER – AIR	1EA	1
62260	FILTER – FUEL	1EA	2
62756	BELT – FAN	1EA	
62190	BELT – ALT	1EA	2
62746	HOSE - LOWER RADIATOR	1EA	2
62747	HOSE - UPPER RADIATOR	1EA	2
64026	SWITCH – PARKING BRAKE	1EA	5
64027	SWITCH – TRACTION CONTROL	1EA	4
64028	SWITCH – TRACTION CONTROL	1EA	4
62284	DRAIN PLUG	1EA	5
60747	DRAIN PLUG SEAL	1EA	5
60925	THERMOSTAT	1EA	5
62263	THERMOSTAT O-RING	1EA	2
62573	RELAY	1EA	3
62312	RELAY – GLOW PLUG	1EA	1
62278	FUSE - 50A GLOW PLUG	2EA	2
62574	FUSE – 10A	2EA	1
62575	FUSE – 15A	2EA	
1412759	FUSE – 5A	2EA	
1243548	FUSE – 30A	2EA	
62665	BULB – FLOODLIGHT	2EA	
62663	BULB – IDENT	2EA	
60588	BULB - BRAKE & TURN	2EA	
60593	LAMP - SIDE MARKER	2EA	
62268	SENSOR – TEMP H2O SHUTDOWN	1EA	
62281	PLATE – 9 PIN RELAY	1EA	
63851	Flash Tube- Strobe	1EA	

Contact EPI Parts at 806-767-4243 or Fax  
888-429-8681



## MAST PERFORMANCE & CAPACITY TABLE

Mast Type	Maximum Fork Height	Overall Lowered Height	Tilt Degrees	Pantograph Retracted Stabilizers Up (1)	Pantograph Extended Stabilizers Up (1)	Pantograph Extended Stabilizers Down (1)
	in (mm)	in (mm)	Fwd Back	lb	lb	lb
Two Stage	72 (1829)	91 (2312)	5 9	5000	3500	5000
	96 (2438)	103 (2618)		5000		5000
	120 (3048)	115 (2922)		5000		5000
	144 (3658)	127 (3226)		4000		4000

1. Capacities (Mast Vertical) 24" (500 mm) Load Center.

**WARNING: Before you lift or place a load over 3500 lbs. Or higher than 72" with the pantograph extended, you must fully lower the stabilizers. Do not raise the stabilizers until you have fully retracted the pantograph. Otherwise, the Trailer Mate could become unstable.**

## STANDARD THREE-WHEEL DRIVE

Mast (MFH)	in / (mm)	72 (1829)	96 (2438)	120 (3048)	144 (3658)
Overall Height Lowered	in / (mm)	91 (2311)	103 (2616)	115 (2921)	127 (3226)
Capacity @ 24" LC	lbs./ (kg)	5000 (2268)	5000 (2268)	5000 (2268)	4000 (1814)
Weight	lbs. / (kg)	5310 (2408)	5500 (2494)	5640 (2558)	6000 (2721)
Extension / Pantograph	in / (mm)	48 (1219)	48 (1219)	48 (1219)	45 (1143)
Gradeability @ 2 MPH	%	53	52	51	49
Tires	in	31 x 15.5			
Overhead Guard Height	in / (mm)	92 (2337)			
Tilt (± 1) Forward/Back	Degrees	5 / 9			
Sideshift Total S/S	in / (mm)	6 (152)			
Ground Clearance	in / (mm)	8.75 (222)			
Frame Opening	in / (mm)	60 (1524)			
Overall Width	in / (mm)	100 (2540)			
Overhang	in / (mm)	65 (1651)			
Overall Length	in / (mm)	107.5 (2731)			
Turning Radius	in / (mm)	93 (2360)			
Power	HP	Cummins 4 Cylinder 2.3L 50 HP water-cooled diesel engine			
Travel Speed	mph / (km/h)	Forward – 9.0 (14.5) / Reverse – 5.9 (9.5)			

COMPONENT SPECIFICATIONS



## COMPONENT SPECIFICATIONS

### ENGINE

#### Cummins 2.3 Liter Diesel Engine

- Naturally aspirated, water-cooled diesel for longer life.
- Rated 50 hp @ 3000 RPM; Governed to 2700 RPM maximum while producing 50 hp for longer engine life.
- Four-cylinder in-line diesel with a swirl chamber gives more complete combustion.
- Direct valve operation via overhead cam driven by a toothed belt – simple to replace, lower maintenance costs.
- Maintenance-free valve timing gear with hydraulic tappets for lower operating costs.
- Distributor fuel injection pump driven with a toothed belt is simple to replace for lower maintenance costs.
- Improved combustion keeps exhaust emissions well below restrictive European Standards and reduces customer complaints.
- Tight sound –proofing tolerances cuts noise to a hush and reduces operator fatigue.
- Enhanced fuel efficiency delivers more power and torque per pound for lower operating costs.

#### General Features:

- Four-stroke naturally aspirated.
- Four cylinders in line.
- Cast Iron cylinder block.
- Maintenance free hydraulic tappets.
- Sheet metal sump.
- Light alloy cylinder head.
- Five bearing crankshaft.
- Valves operated by overhead camshaft and toothed belt drive.
- Sealed pressurized water cooling system.
- Pressure fed lubricating system, with pump and filter.
- Mechanical fuel injection system with distributor type pump.
- Dry air cleaner with paper element.

## COMPONENT SPECIFICATIONS

### WHEELS AND TIRES

#### Standard High Flotation Tires / For Agricultural and Industrial Service

- Tire Size Designation: 31" x 15.50" – 15" NHS
- Tire Type: Regular Lug Traction Tread
- Ply Rating: 8 ply
- Maximum Load: 3660 lbs rolling (5000 lbs static per Tire)
- Inflation Pressure: 45 PSI
- Section Width: 15.10"
- Overall Diameter: 31.40"
- Design Rim Width: 13.00"

#### Wheel Rim / 13 lb Rim Contour

- Design Rim Width: 13.00"
- Nominal Diameter: 15.00"
- Flange offset: +2" (outboard of center)
- Pilot Diameter (OD): 7.875 +/- .010"
- Stud Size: 5/8" – 18 UNF
- Number of Studs: 9 each
- Bolt Circle: 9.500"
- Flange Diameter (OD): 11"

### CAPACITIES

Fuel: 6.7 gallons (Consumption Rate – 1 gallon per hour @ full throttle)

Engine Oil: 4.77 quarts with filter

Hydraulic Oil: 20 gallons

Coolant: 5.3 quarts

Gear Oil: 0.66 quarts for each drive hub

### HYRAULIC SYSTEM PRESSURES

Transmission Charge Pump: 315 PSI

Transmission Loop: 5000 PSI max.

Steering Circuit: 2750 PSI max.

Implement Circuit: 3000 PSI max.

## COMPONENT SPECIFICATIONS

### MAST / CARRIAGE

**Side Shifting Mast: (Allows lateral adjustment of fork-load)**

- Gives the operator the capability of more precise fork-load placement.
- Reduces product damage and allows for better cube utilization.
- Also makes it easier to mount the Trailer Mate.

**Pantograph-Reach Mechanism: Allows forks to extend out 48” to pick up load. Heel of forks extend beyond front of tires when pantograph is fully extended.**

**Allows loads wider than frame opening to be picked up from ground level safely.**

- Most of the load can be removed from one side of the trailer (compared to a truck with a sliding mast). No need to go out into traffic.
- Allows double stacking two pallets deep.
- Better space utilization.
- Helps keep the horizontal center of gravity within the stability triangle.

**Double Scissor Pantograph: Improves visibility through the mast when in all positions.**

- Leads to improved productivity-operator more confident of fork-load position.
- Reduces product damage and subsequent clean up.
- Eases mounting to trailer.

**Self-Lubricating Slider blocks on Mast and Pantograph: Spreads contact load over larger area and reduces maintenance compared to rolled mast.**

- Reduces wear on mast rails – due to larger contact area.
- Blocks can be replaced in a matter of minutes with no mast or carriage disassembly.
- Self-lubricating blocks reduce need for greasing.
- No high cost roller bearings to fail.

### Center Seating:

**Allows operator to be seated directly behind the center of the mast.**

- Gives the operator a clear and in-line view of both drive wheels and both fork tips for more positive load placement.
- Reduces product damage and subsequent clean up costs.
- Also gives the operator a more comfortable ride.
- Provides space between operator & obstructions on either side of machine.

## **COMPONENT SPECIFICATIONS**

### **Tight 93" Turning Radius (3-WD):**

**Allows work to be done in tight quarters.**

- Gives the operator the potential of working in tighter quarters than most competitive machines.
- Reduces space required for maneuvering the vehicle-especially around residential construction sites.

### **Hydrostatic Power Steering Standard on both 2-Wheel and 3-Wheel Drive:**

**Reduces steer effort.**

- Unlike a rear caster wheel or dolly, the TM50 gives the operator precise control of lateral movement.
- Allows operator with a lower skill level to operate the TM50 vs. some competitive units.
- Turning radius is the same in both directions.

### **Hydrostatic Drive:**

**Provides for Horizontal Movement. No Shifting required.**

- Eliminates need for service brakes.
- No clutch packs or brake lining and drums to wear.
- Reduces maintenance cost vs. a truck with conventional transmission, torque converter set up.
- Gives the operator infinitely variable control of the speed and torque range.
- Improves productivity vs. a mechanical drive.

### **On demand traction control:**

**Applies equal torque to all Drive wheels only as required.**

- Helps reduce heat build up in system and provides better fuel efficiency than if the traction lock was engaged all the time.
- Provides longer component life and lower fuel costs.
- Operator has more precise control over steering.

## COMPONENT SPECIFICATIONS

### **Detent in stabilizer valve spool:**

Ensures that valve lever remains engaged until stabilizer is fully extended or retracted.

- Minimizes potential damage to stabilizer.
- Reduces likelihood that operator may extend the pantograph without stabilizers being fully engaged or try to travel without stabilizers being fully disengaged.

### **Check valve in stabilizers:**

Prevents oil from flowing out of the stabilizers when in use if a hydraulic line should fail.

- Helps prevent an unstable condition that could occur if a hydraulic line should fail while stabilizers are in use.

**O-Ring Face Seals at all hydraulic connections: Virtually eliminates leaks.**

- Substantially reduces leaks and therefore customer complaints. No leaks mean fewer oil spots on floor that people can slip on or need to clean up.
- Reduces the possibility for the system to be contaminated, because fewer repairs are required and exposure to dirt is minimized.

**Excellent service and daily maintenance accessibility: Reduce maintenance costs.**

- The easier something is to do, the greater the likelihood that it will be done.
- All daily maintenance checks can be performed from the right hand side of the vehicle after the hood has been opened.
  - Reduces maintenance time and cost.
  - Missing daily maintenance checks can lead to major truck failures, so we made them easy to do. All major engine components can be removed and replaced.

## COMPONENT SPECIFICATIONS



TM50 3-Wheel  
Drive with Load  
Support Option.

Notes:



## COMPONENT SPECIFICATIONS



Notes:

COMPONENT SPECIFICATIONS



TM50 3-Wheel Drive  
with High Air Intake



