# Heavy Duty Forklift

## Compact 16.0~32ton

Heavy duty forklift 16.0~32ton

maxi

maxi

maximal

Maximal Forklift (Zhejiang) Co., Ltd

Контакты продавца
kupit-shtabeler.ru
zakaz@kupit-shtabeler.ru
+7 495 159-44-32

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CE CERTIFICATE ISO 14001:2004 ISO 9001:2000

## Maximal introduces heavy capacity forklifts

Maximal heavy duty forklift trucks, available in 16.0 capacity ratings, are designed to handle heavy loads in the toughest environments. From the robust wide view mast to the world class components including CUMMINS engines, KESSLER drive axle, ZF transmission and related accessories these trucks are designed to meet and exceed your application requirements.

These trucks are designed with modern ergonomics that allow the operator to be more productive in demanding conditions. Operator comfort was a key issue in the design of the all weather spacious cab including fully adjustable safety seat, tilt steering column and the 360 degree view through the panoramic windows.
Maximal engineers have developed a proven design to tackle the most demanding customer applications.

## Intelligent by Design

The incorporation of a CAN-Bus system allows for a seamless connection of the vehicle Control Module (VMC) and Engine Control Module (ECM). This allows immediate exchange and accessibility to all data. Additional benefits include a significant reduction in wiring as well as increased functionality over conventional systems. The CAN-Bus system also delivers excellent reliability and full diagnosis capabilities, simplifying the servicing of the truck.

## Improved Fuel Economy

Minimize Tier 3 requirements
Program to Lower Rated Speeds to offset fuel consumption
Alternate Governor and Torque settings
Maintain fuel economy with HPCR ECM system compared to mechanical system

## World Class Efficient ZF Transmission

ZF transmission from Germany in Maximal compact16.0-32t /35,200- 70,000 LB capacity heavy duty forklift trucks
ZF transmissions offer these features:

- Fully reversible power shift control
- 3 forward and 3 reverse speeds
- Positive speed engagement
- Reduction of operating costs
- Lower operating noise
- Customer orientated serviceability
- Applicable for electronic driveline management and inching

## Lower Maintenance Drive Axle & Brakes

German KESSLER drive Axle provides excellent lateral stability and long-term durability. Full floating axle shafts and hub planetary final drives reduce axle windup to deliver higher torque to the drive wheels allowing greater tractive effort and performance.
Multi-plate wet disc braking system supplied by American MICO Corp. offers more effective and reliable braking.

## Superior visibility

The Cab also contributes to providing the driver with panoramic 360 Degree visibility, featuring:

- Large curved front window, fitted with tinted safety glass provides better visibility.
- Curved rear window with one-piece glass.
- Minimum use of steel parts, providing the maximum possible glazed area.
- Wide-view rear view mirrors are mounted inside the cab stay cleaner and are protected from damage.
- The dash and display panel is mounted to the right hand side of the driver, so visibility through the windshield is unobstructed.
- Excellent rearwards visibility is enhanced with the sloping design of the hood and counterweight.
- A clear view to the front load and surrounding area is optimized through the Maximal wide view mast.

## Maintenance Intervals Doubled and Efficient Diagnostic program

- Cummins Tier 3 Scheduled Maintenance
  500 hours/6 month intervals for charge air cooled; same schedule for coolant changes; Dual Stage fuel filtration to improve particle separation, filter life and protect vital fuel system components.
- Equipped as standard with either a manual or power hydraulic tilting cab, to ensure easy access to major components for inspection and service.
- Low side steps and large grab handles, providing operators safe and easy access to the operators cab. Technicians can use side steps for daily inspections and maintenance.
- Uniform placement of electrical and hydraulic tubing and hoses.
- Centralized diagnostics in the operator cab
- "CAN bus" receptacle in the operator cab, for engine, transmission, hydraulics and instruments monitor panel.
- LCD display with diagnostics for engine, transmission and electrical systems to quickly identify service needs.
- Standard oil-immersed (wet) multi-plate disk brakes are virtually maintenance free.

## Power & Performance

Maximal compact16.0-32t / 35,200-70,000 LB capacity fork–lift range is available with Cummins Diesel engine meeting a world standard Tier 3 emissions legislation:
compact16t / 35,200 LB capacity forklift CumminsQSB6.7 diesel engine features: 6-cylinder in-line, 6.7 liter displace –ment.
Charger air cooling w/waste gate controlled turbocharger. Max. 129kw(173Hp) output at 2200rpm, offering extra durability for long periods of peak performance. Smooth torque of 800 Nm at 1400rpm provides excellent acceleration for maximum power.
16-20t / 35,200-44,000 LB capacity forklift Cummins QSB 6.7 diesel engine features:6-cylinder in-line, 6.7 liter displacement
Charge-air cooling w/waste gate controlled turbocharger.
Max 142 kW(192 Hp) output at 2300 rpm,offering extra durability for long periods of peak performance.Smooth torque of 930 Nm at 1500 rpm provides excellent acceleration for maximum power.
25-32t / 55,000-70,000 LB capacity forklift Cummins QSC 8.3 diesel engine features:6-cylinder in-line , 8.3 liter displacement
Charge-air cooling w/ waste gate controlled turbocharger.
Max 176 kW (238 Hp) output at 2300 rpm,offering extra durability for long periods of peak performance.Smooth torque of 1085 Nm at 1500 rpm provides excellent acceleration for maximum power.

## Green & Clean

Euro III / EPA: Diesel engines that incorporate Japanese and American advanced engine technologies feature excellent environmental performance and conform to the world latest EPA Tier3 and EU Stage IIIA emission regulations.

## Optional Equipment

- Specific masts 3M/118" MFH to 6M/240" MFH Simplex mast
  >Side shift/Fork position carriages with shaft type forks
- Solid / Pneumatic size tires
- Air conditioning
- Rear camera surveillance system
- Special RAL colors
- Various attachments
  >Contact your MAXIMAL dealer in your area for additional details.

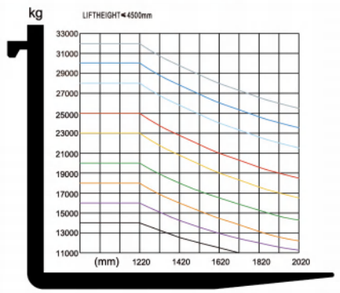
Engine protection system, sensing low oil pressure and high coolant temperature monitors the engine performance and shuts down the engine prior to a possible failure. An override function for emergency situations is a standard feature.

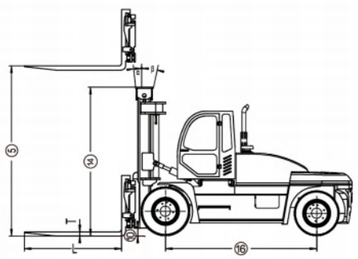
**CUMMINS QSB 6.7 / CUMMINS QSC 8.3**

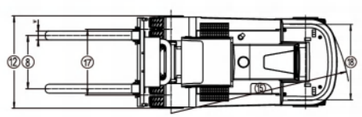
## M series 16.0-32.0t diesel forklift

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Model | | | FD160T-MWK3-2 | FD180T-MWK3-2 | FD250T-MWM3 | FD280T-MWT3 | FD300T-MWT3 | FD320T-MWT3 |
| 2 | Power Type | | | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| 3 | Rated Capacity | | kg | 16000 | 18000 | 25000 | 28000 | 30000 | 32000 |
| 4 | Load Centre | | mm | 1220 | 1220 | 1220 | 1220 | 1220 | 1220 |
| 5 | Lift Height | | mm | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 |
| 6 | Mast tilt angle | F/R | Deg | 6°/12° | 6°/12° | 6°/12° | 6°/12° | 6°/12° | 6°/12° |
| 7 | Fork | L×W×T | mm | 2440×250×105 | 2440×250×110 | 2440×300×110 | 2440×300×110 | 2440×320×110 | 2440×320×110 |
| 8 | | Regulating range | mm | 910-2240 | 910-2240 | 1040-2660 | 1500-3120 | 1500-3120 | 1500-3120 |
| 9 | | Max.side shifter | mm | 660(±330) | 660(±330) | 810(±405) | 810(±405) | 810(±405) | 810(±405) |
| 10 | Front overhang (Wheel center to fork face) | | mm | 1060 | 1060 | 1200 | 1260 | 1260 | 1260 |
| 11 | Rear Overhang | | mm | 1000 | 1000 | 1100 | 1260 | 1260 | 1260 |
| 12 | Ground clearance (Bottom of mast) | | mm | 220 | 220 | 300 | 300 | 300 | 300 |
| 13 | Overall dimensions | Overall length(include forks) | mm | 8300 | 8300 | 9240 | 9740 | 9740 | 9740 |
| 14 | | Overall width | mm | 2535 | 2535 | 3020 | 3420 | 3420 | 3420 |
| 15 | | Overall height Driver's cab | mm | 3280 | 3280 | 3580 | 3800 | 3800 | 3800 |
| 16 | | Overall height Mast | mm | 3915 | 3915 | 4255 | 4390 | 4390 | 4390 |
| 17 | Min.turning radius(outside) | | mm | 5300 | 5300 | 6100 | 6800 | 6800 | 6800 |
| 18 | Tyres | Front | | 12.00-24-20PR | 12.00-24-20PR | 14.00-24-28PR | 16.00-25-32PR | 16.00-25-32PR | 16.00-25-36PR |
| 19 | | Rear | | 12.00-20-20PR | 12.00-20-20PR | 14.00-24-28PR | 16.00-25-32PR | 16.00-25-32PR | 16.00-25-36PR |
| 20 | Tread | Front | mm | 1850 | 1850 | 2200 | 2490 | 2490 | 2490 |
| 21 | | Rear | mm | 2120 | 2120 | 2300 | 2470 | 2470 | 2470 |
| 22 | Wheelbase | | mm | 3800 | 3800 | 4500 | 4800 | 4800 | 4800 |
| 23 | Speed | Travel(Unladen) | km/h | 30 | 30 | 28 | 26 | 26 | 26 |
| 24 | | Lifting(Laden) | mm/s | 320 | 320 | 300 | 270 | 270 | 260 |
| 25 | | Lowering(Laden) | mm/s | 380 | 380 | 330 | 310 | 310 | 310 |
| 26 | Max. Drawbar pull(Laden) | | KN | 125 | 125 | 160 | 250 | 250 | 250 |
| 27 | Max. Gradeability(Laden) | | % | 25 | 25 | 25 | 20 | 20 | 20 |
| 28 | Self weight | | kg | 25800 | 26300 | 36400 | 41500 | 42000 | 42800 |
| 29 | Weight Distribution Laden | Front Axle | kg | 38400 | 41600 | 56940 | 63700 | 66750 | 70300 |
| 30 | | Rear Axle | kg | 3400 | 2700 | 4460 | 5300 | 5750 | 5700 |
| 31 | Unladen | Front Axle | kg | 12800 | 12800 | 18500 | 21000 | 21000 | 21500 |
| 32 | | Rear Axle | kg | 13000 | 13500 | 17900 | 20000 | 21500 | 22500 |
| 33 | Battery | Voltage/Capacity | V/Ah | 2×12/120 | | 2×12/120 | 2×12/120 | | |
| 34 | Engine | Model | | QSB6.7-C190 | | QSC8.3-C240 | QSC8.3-C260 | | |
| 35 | | Manufacturer | | Cummins | | Cummins | Cummins | | |
| 36 | | Rated output/r.p.m. | kw | 142/2300 | | 176/2200 | 194/2200 | | |
| 37 | | Rated torque/r.p.m. | N·m | 930/1500 | | 1085/1500 | 1180/1500 | | |
| 38 | | No.of cylinder | | 6 | | 6 | 6 | | |
| 39 | | Bore x Stroke | mm | 107×124 | | 117×135 | 117×135 | | |
| 40 | | Displacement | L | 6.7 | | 8.3 | 8.3 | | |
| 41 | | Fuel tank capacity | L | 150 | | 250 | 250 | | |
| 42 | Transmission | Manufacturer | | ZF | | ZF | ZF | | |
| 43 | | Type | | 3WG171 | | 3WG211 | 3WG211 | | |
| 44 | | Stage F/R | | 3/3 | | 3/3 | 3/3 | | |
| 45 | Drive axle | manufacturer | | Chinese Huachen | | KESSLER | KESSLER | | |
| 46 | | service brake | | Wet Multi-disk Brake | | Vet Multi-disk Brake | Wet Multi-disk Brake | | |
| 47 | | parking brake | | Caliper disc brake | | Caliper disc brake | Caliper disc brake | | |
| 48 | Operating pressure(For attachments) | | Mpa | 19 | | 21 | 21 | | |

### Load Chart





## M Series 16.0-32.0ton Heavy Duty Diesel Forklift

## M series Compact 16t diesel forklift

| | | | | |
|---|---|---|---|---|
| 1 | Model | | | FD160T-MXWS3-2 |
| 2 | Power Type | | | Diesel |
| 3 | Rated Capacity | | kg | 16000 |
| 4 | Load Centre | | mm | 600 |
| 5 | Lift Height | | mm | 4000 |
| 6 | Mast tilt angle | Front/rear | Deg | 6°/12° |
| 7 | Fork Dimension （L×W×T） | | | 1500×200×90 |
| 8 | Fork Regulating Range | | | 840–2150 |
| 9 | Max.sideshifter Range | | mm | 630(±315) |
| | Min.Ground clearance (Bottom of mast) | | mm | 250 |
| 11 | Overall length(include forks) | | mm | 6850 |
| 12 | Overall width | | mm | 2430 |
| 13 | Overall height | Driver's cabin | mm | 3190 |
| 14 | | Mast | mm | 3870 |
| 15 | Min.turning radius | | mm | 5100 |
| 16 | Wheelbase | | mm | 3500 |
| 17 | Front Tread | | mm | 1743 |
| 18 | Rear Tread | | mm | 2050 |
| 19 | Front Tyre | | | 12.00-20-20PR |
| 20 | Rear Tyre | | | 12.00-20-20PR |
| 21 | Speed | Travel(Unladen) | km/h | 26 |
| 22 | | Lifting(Laden) | mm/sec | 350 |
| 23 | | Lowering(Laden) | mm/sec | 380 |
| 24 | Max. Drawbar pull(Laden) | | KN | 100 |
| 25 | Max. Gradeability(Laden) | | % | 22 |
| 26 | Self weight | | kg | 21500 |
| 27 | Engine | Model | | QSB6.7-C173 |
| 28 | | Manufacturer | | Cummins |
| 29 | | Rated output/r.p.m. | kw | 129/2200 |
| 30 | | Rated torque/r.p.m. | N·m | 799/1400 |
| 31 | | No.of cylinder | | 6 |
| 32 | | Bore x Stroke | mm | 107×124 |
| 33 | | Displacement | L | 6.7 |
| 34 | | Fuel tank capacity | L | 140 |
| 35 | Transmission | Manufacturer | | ZF |
| 36 | | Model | | 3WG171 |
| 37 | | Stage Front/rear | | 3/3 |
| 38 | Battery Voltage/Capacity | | V/Ah | 2x12/120 |
| 39 | Operating pressure(For attachments) | | Mpa | 19 |

## M series Compact 16t mast

| Model | Max.Fork Height (mm) | Overall Height (mm) | | Tilt angle (F/R) | Capacity (Kg) | | | Self Weight (Kg) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | load center at 600mm | load center at 1220mm | | | | |
| | | FD160TX | FD160T/ FD180T | | FD160TX | FD160T | FD180T | FD160TX | FD160T | FD180T |
| M350 | 3500 | 3620 | 3665 | 6°/12° | 16000 | 16000 | 18000 | 21365 | 25680 | 26180 |
| M400 | 4000 | 3870 | 3915 | 6°/12° | 16000 | 16000 | 18000 | 21500 | 25800 | 26300 |
| M450 | 4500 | 4120 | 4165 | 6°/12° | 16000 | 16000 | 18000 | 21635 | 26210 | 26710 |
| M500 | 5000 | 4420 | 4465 | 6°/6° | 15000 | 15000 | 16500 | 21955 | 26330 | 26830 |
| M550 | 5500 | 4670 | 4715 | 3°/6° | 14000 | 14000 | 15000 | 22050 | 26450 | 26950 |
| M600 | 6000 | 4970 | 5015 | 3°/6° | 13000 | 13000 | 14000 | 22175 | 26570 | 27070 |

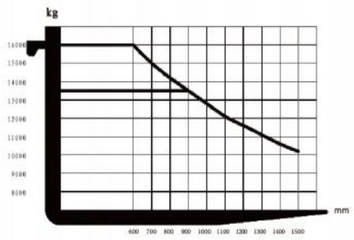
## FD250-320T Mast

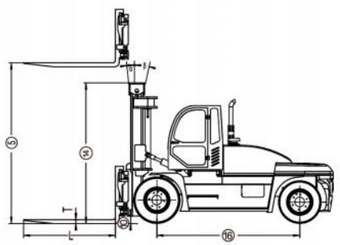
| Model | Max.Fork Height (mm) | Overall Height (mm) | | Tilt angle (F/R) | Capacity (Kg) load capacity at 1220mm | | | | Self Weight (Kg) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FD250T | FD280T/ FD300T/ FD320T | | FD250T | FD280T | FD300T | FD320T | FD250T | FD280T | FD300T | FD320T |
| M350 | 3500 | 4005 | 4140 | 6°/12° | 25000 | 28000 | 30000 | 32000 | 36215 | 40800 | 42300 | 43800 |
| M400 | 4000 | 4255 | 4390 | 6°/12° | 25000 | 28000 | 30000 | 32000 | 36400 | 41000 | 42500 | 44000 |
| M450 | 4500 | 4505 | 4640 | 6°/12° | 25000 | 28000 | 30000 | 32000 | 36900 | 41600 | 43100 | 44600 |
| M500 | 5000 | 4805 | 4940 | 6°/6° | 23000 | 26500 | 28500 | 30500 | 37090 | 41850 | 43350 | 44850 |
| M550 | 5500 | 5055 | 5190 | 6°/6° | 21500 | 25500 | 27500 | 29500 | 37280 | 42065 | 43565 | 45065 |
| M600 | 6000 | 5355 | 5490 | 3°/6° | 20000 | 24000 | 26000 | 28000 | 37470 | 42300 | 43800 | 45300 |

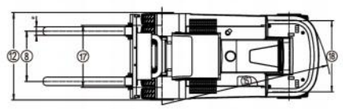




**Load Chart**





M Series **Compact 16ton**
Heavy Duty Forklift

maximal

# COMPANY MEMORABILIA

| | | |
|---|---|---|
| 2005 | Dec | Zhejiang Maximal Forklift Co., Ltd was officially established. |
| 2006 | Oct | M series forklifts displayed at the 100th Canton fair. |
| 2007 | Nov | Maximal phase I project of the new factory finished. |
| 2008 | Jan | Structure of electric forklift was further optimized. |
| | Nov | Maximal was appointed by the General Logistics Department of the People's Liberation Army(PLA) to be supplier for Military Equipment. |
| 2009 | Mar | 4.0T&5.0T and 8.0-10.0T diesel forklift were launched to enrich M Series. |
| | May | Maximal started to prepare the R&D of 16.0-18.0T diesel forklift. |
| 2010 | Nov | The first 4.5T electric forklift and 25.0T heavy duty forklift were displayed on Shanghai CeMAT. |
| | Dec | Maximal and Military Transportation University reached |
| 2012 | | Maximal was honored as "state-level high-tech enterprise". |
| 2013 | May | Maximal 2WD 2.5/3.5T Rough Terrain forklift was launched to the market. |
| | July | Maximal Empty Container Handler was officially developed. |
| 2014 | Jun | Maximal electric stackers & pallet trucks were put into market. |
| | Aug | Maximal 2WD Rough Terrain forklift were extended to 4.0/5.0T. |
| | Dec | Maximal phase II project was finished. |
| 2015 | May | Maximal 3.5T 4WD Rough Terrain forklift was successfully developed. First Reach Stacker successfully was sold in domestic market. |
| 2016 | July | Maximal won the Chinese well-known trademark. |
| | Oct | 1.8-3.5T C. 4WD Hydraulic rough terrain forklift was successfully launched. |
| 2018 | July | 3.5-4.5T Sider-loader forklift was lanuched; Electric forklift with lithium battery started to be developed; 1.6-2.5T A series Reach truck was lanuched. |
| | June | **Hyster-Yale and Maximal offcially completed its acquisition, Maximal began a new start.** |