

RS45-46 SERIES



**STRONG PARTNERS.
TOUGH TRUCKS.™**

REACHSTACKER CONTAINER HANDLERS

RS45-27, RS45-31, RS46-36,
RS46-41L, RS46-41S, RS46-41LS



RS45-46 SERIES

TOUGH TRUCKS FOR CONTAINER HANDLING APPLICATIONS

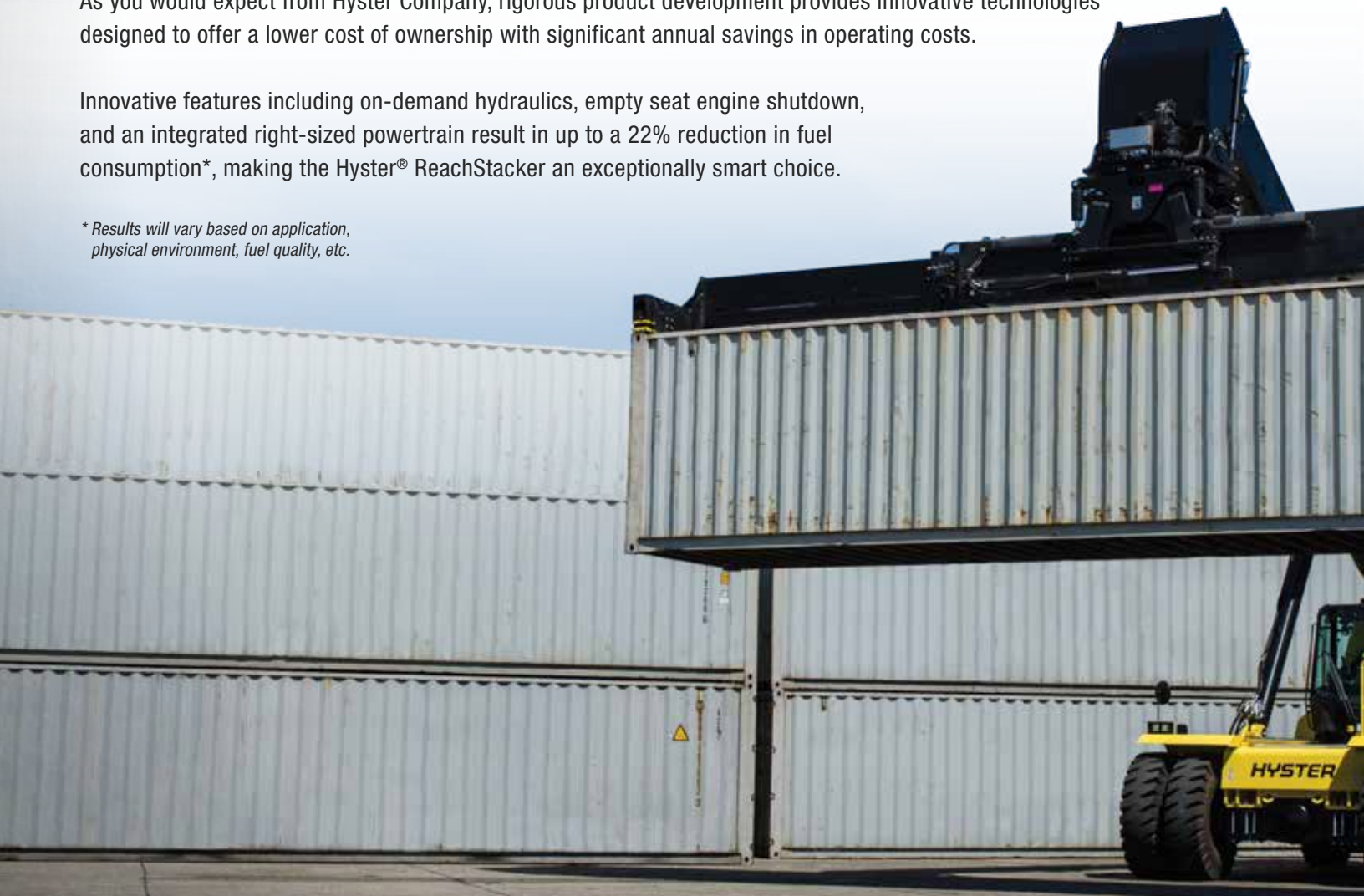
Hyster Company's reputation for providing industry leading solutions for container handling applications in ports and terminals is known worldwide. The Hyster® RS45-46 series offers a Tier 4 Final powertrain featuring the Cummins QSL 9L engine with cooled Exhaust Gas Recirculation (EGR) and Selective Catalytic Reduction (SCR). With innovation at the heart of every Hyster® big truck design, we've delivered one of the most reliable materials handling trucks on the market, with a low cost of ownership and outstanding performance—the Hyster® RS45-46 Series ReachStacker.

From the RS45-27 through the RS46-41LS trucks, six models are available, all offering capable lifting for stacking and storage of both containers. With over 50 years in the container handling business, Hyster® ReachStackers have become known as one of the industry's best innovations in container handling. Hyster offers stacking solutions in the first row for up to 5 containers high. The extendable boom enables container yard operators to stack laden containers up to 3 rows deep.

As you would expect from Hyster Company, rigorous product development provides innovative technologies designed to offer a lower cost of ownership with significant annual savings in operating costs.

Innovative features including on-demand hydraulics, empty seat engine shutdown, and an integrated right-sized powertrain result in up to a 22% reduction in fuel consumption*, making the Hyster® ReachStacker an exceptionally smart choice.

** Results will vary based on application, physical environment, fuel quality, etc.*





■ **DEPENDABILITY**

- Integrated powertrain
- Optimized reinforced frame design
- Hyster Tracker compatible
- High strength boom design
- High capacity cooling system
- Heavy duty drive train

■ **LOW COST OF OWNERSHIP**

- Reduced fuel consumption
- Automatic throttle-up
- Traction speed limiter (Optional)
- On-demand hydraulics
- On-demand cooling system
- Hibernate idle (Tier 4)

■ **SERVICEABILITY**

- Easy access to major components
- On-board diagnostics
- Longer service intervals
- Guaranteed Availability Program
- Automatic greasing system

■ **ERGONOMICS**

- Outstanding all-around visibility
- Sliding cab
- Designed for operator comfort
- Ease of ingress/egress

■ **PRODUCTIVITY**

- Competitive speeds
- Autoshifting transmission
- True inching capability
- High capacity powertrain
- Mast spreader
- Twistlock module with indicator lights

DEPENDABILITY

ENGINEERED TO EXCEL USING PROVEN COMPONENTS

■ INTEGRATED POWERTRAINS

TIER 4 FINAL

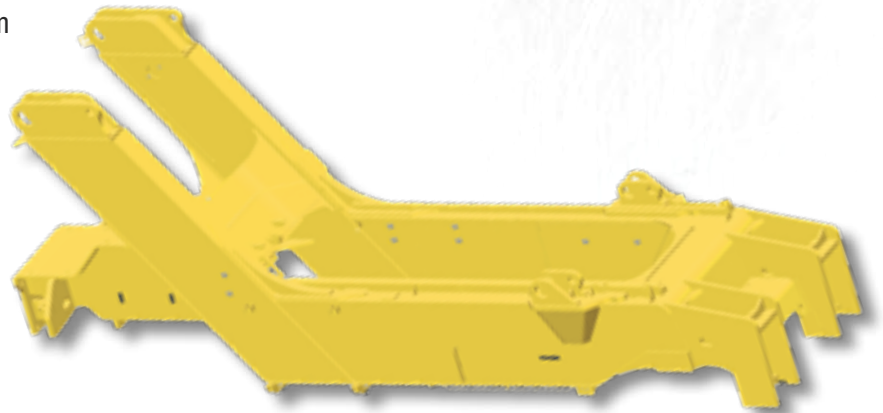
- Features Cummins QSL 9L 370 hp engine used in 80,000–115,000 lbs. capacity products with after treatment package (SCR, DOC and DEF).
- Rugged Spicer Model TE 32 powershift transmission from Dana with proven field experience and reliability.
- Water-cooled variable geometry turbocharger (VGT) enhances engine response and improves engine horsepower characteristics.
- On-demand cooling in which the fan operates at variable speeds (depending on cooling needs) to ensure that the maximum engine power is available during driving and handling operations, thereby maximizing productivity.
- Hibernate idle lowers the engine idle speed from 900 to 700 RPM, after 30 seconds of idling if no driver input is received, thereby saving fuel.

TIER 3

- Features Cummins QSM 11L 365 hp engine with a 120 amp alternator used in 80,000–115,000 lbs. capacity products.
- Spicer Models TE 27 and TE 32 transmissions available depending on models selected.
- Water-cooled wastegate turbo.
- On-demand cooling system.

■ REINFORCED FRAME OPTIMIZED FOR CONTAINER HANDLING

- The frame and boom design offer durability and excellent visibility.
- Frame strength is enabled with reinforced welding of the main sections with heavy duty rear supports to provide further rigidity while enhancing excellent rearward visibility.
- The boom design using high quality grade T-1 steel, offers increased durability as well as less wear and improved component life. This results in lower service costs and improved uptime, which help to reduce overall operating costs.

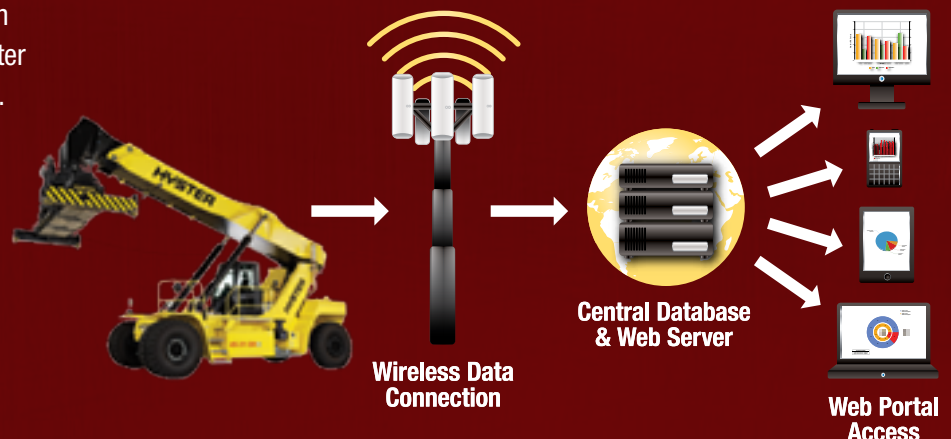


HYSTER TRACKER - WIRELESS ASSET MANAGEMENT

Take your fleet operation to the next level with wireless asset management from Hyster. Hyster Tracker provides a scalable solution for fleets. From monitoring truck utilization to limiting operator access, Hyster Tracker allows you to track your fleet at your fingertips.



TRACKER





Cooling system with puller fan

■ HIGH CAPACITY COOLING SYSTEM

- Robust cooling system designed for ambient temperatures of up to 120°F.
- Components last longer with cooler fluid temperatures.
- Puller fan drawing cool and clean air enables cooling system to be more effective.

■ DURABLE ELECTRICAL

- CANbus communication allows the transmission, hydraulic system, engine and dash display to communicate seamlessly.
- Environmentally sealed Deutsch connectors used throughout the truck.
- Silicon seals prevent moisture in connections.
- 24 Volt system enables lower amperage drop in the electric circuit.



Heavy duty steer axle



Kessler planetary drive axle

■ HIGH STRENGTH BOOM DESIGN

- Robust boom design ensures boom rigidity for laden container handling applications.
- High strength inner and outer boom design enables container stacking up to 5 high and 3 rows deep.



Durable 2-stage boom design constructed with T-1 steel, with two plane welding for added boom strength

HEAVY DUTY STEER AXLES

Each Hyster® big truck comes equipped with a steer axle engineered for long life and outstanding steering capability. An adjustable outside turning radius is available, reducing stress on the axle and improving tire life by reducing tire scrubbing. Oil bathed wheel bearings ensure bearings are constantly lubricated.

HEAVY DUTY KESSLER D102 DRIVE AXLES

Rugged drive axles bolted to the frame on the ReachStacker are equipped with oil immersed wet disc brakes, providing long life. The axles are also designed for extended differential fluid change intervals.

LOW COST OF OWNERSHIP

TECHNOLOGY THAT TRANSFORMS

At Hyster, we understand that your total cost of ownership extends beyond just the initial acquisition costs. Hyster solutions provide significant savings in fuel consumption and maintenance costs over the life of the truck.

■ LOWER FUEL CONSUMPTION

- Very low fuel consumption compared to similarly sized trucks.
- Utilizes proven technology implemented on previous Hyster® big trucks.
- Reliable and durable engine design, introducing an Xtra-High Pressure Injection (XPI) fuel system.
- Fueling system allows precise matching of engine rpm to load demands for optimal performance.
- Advanced controls enables Cummins 9L QSL engine to provide peak performance and operating efficiency while delivering on great fuel economy and durability.

■ INTEGRATED SYSTEMS DESIGN

- Unique relationship with Cummins enables a well-integrated powertrain to deliver lower fuel consumption on Hyster® trucks.
- Powertrain solution optimized for maximum performance and excellent fuel consumption.
- Fuel consumption is a key driver of the total cost of ownership for high capacity laden container handlers. A harmonized systems design integrates technologies developed from over 50 years of expertise in container handler design including Automatic Throttle-Up, On-Demand Hydraulics, On-Demand Cooling and Hibernate Idle to deliver lower fuel consumption on Hyster® trucks under varying load conditions.
- Innovative ECO modes: Hi-P and e-Lo (Tier 4 Only)
 - Hi-P provides maximum performance and good fuel economy.
 - e-Lo provides minimum fuel consumption without losing productivity.



Cummins QSL 9L Tier 4 Final



Cummins QSM 11L Tier 3

■ TRACTION SPEED LIMITER (OPTIONAL)

- Load sensing system reduces traction speeds.*
- Helps drivers to operate truck in an optimal manner with regard to site limitations.
- Traction speed limiter settings adjustable by the dealer.
- Two options available to suit varying customer applications:
 - Traction speed limiter to set the maximum speed.
 - Loaded traction speed limiter to restrict traction speeds to a set point when a predetermined load weight is sensed on the forks. Factory preset to 8 mph and activates at 10% rated load.

* Less speed means lower fuel consumption. Tier 4 Final engines must run on Ultra Low Sulfur Diesel (ULSD) fuel, with a maximum of 15 ppm sulfur content. Results may vary. Tier 4 Final features may help increase efficiency by delivering lower fuel consumption over Tier 3 products produced over 5 years ago.

■ ON-DEMAND HYDRAULICS

- Load-sensing on-demand hydraulic system delivers oil flow only when required.
- Capable of more oil displacement even at low engine speeds.
- Engine runs quieter and at lower speeds, extending the life of major components.
- Uses less fuel (up to 5–10% fuel reduction solely from on-demand hydraulics).
- Based on variable displacement pump technology; many products use fixed displacement gear pumps.
- Less heat is produced – oil and filters last longer. Hoses, seals and components also wear less and last longer.



Load-sensing on-demand hydraulic system



Hydraulically driven on-demand cooling fan for less fuel consumption and quieter operation.

■ ON-DEMAND COOLING SYSTEM

- The cooling fan draws power only when cooling is required between 10% and 100% of the engine speed, unlike direct drive fans which draw high levels of power at all times.
- Reduces accessory loads on powertrain.
- Consumes less fuel and lowers the noise level.

■ EMPTY SEAT ENGINE SHUTDOWN (OPTIONAL)

- Reduces fuel consumption by shutting truck down when operator is out of the seat for extended periods, thus limiting idle hours on the truck.
- Programmable to activate within 3–15 minutes after operator leaves seat.
- Factory preset easily adjustable by customer with minimal tools.
- Lowers total cost of ownership over the life of the truck.

■ HIBERNATE IDLE (TIER 4)

Available on all Hyster® RS45-46 series trucks, hibernate idle is a feature that reduces the engine idle speed to 700 rpm during extended idle periods to further conserve fuel. Hibernate idle is available on Tier 4 engine trucks only.



SERVICEABILITY

ACCESS MAJOR COMPONENTS IN SECONDS

All major components are readily accessible for servicing, resulting in shorter downtimes, increased productivity and lower cost of ownership. We also provide you with the parts you'll need to do the job along with a dedicated dealer network to answer any questions you may have.

■ EASE OF SERVICE

- The hydraulic oil tank features a sight glass for the oil level, as well as magnetic drain plugs.
- The sliding cab, in combination with lightweight aluminum floor plate sections, provides quick access for service work.
- Easy access to electrical components, oil and air filters.
- Access steps to the cab from the right-hand side of the truck is available as an option. Access steps from the left hand side of the truck is standard.

Broad running boards and steps provide easy access to the cab as well as major systems and components.

Lightweight, aluminum floor plates enable quick removal for easy service access.



■ ON-BOARD DIAGNOSTICS

CANbus on-board diagnostics with fuses centrally located in the side console makes for easy servicing and troubleshooting. Error codes are provided in an LCD display for quick and effective identification of service items while enabling rapid implementation of remedies, reducing downtime and reducing the mean time for repairs.



Battery Maintenance

■ LONGER SERVICE INTERVALS

Major engine and drivetrain components are engineered to operate on 500-hour service intervals. Extended hydraulic oil change intervals ensure that the truck remains in operation with longer mean times between oil changes or servicing.



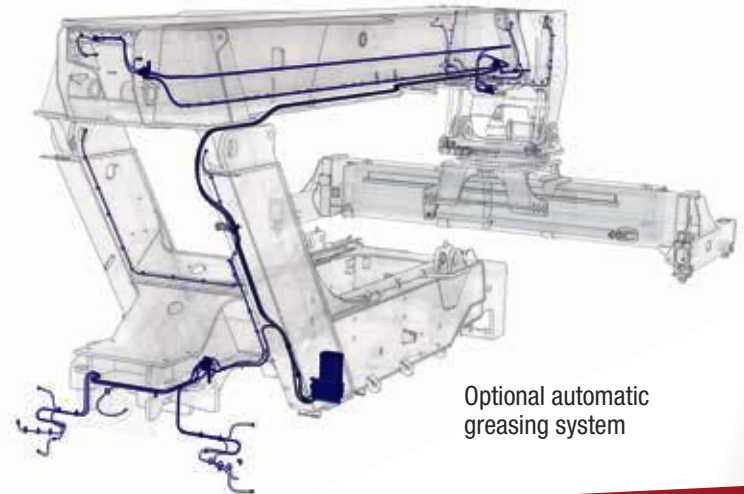
Hydraulic Sight Glass



Oil Maintenance

■ AUTOMATIC GREASING SYSTEM

An automatic greasing system is optional on all RS45-46 series trucks. Greasing is enabled for the base truck and outer boom as an option. Additional auto-greasing capability is also available for the inner boom and spreader.*



Optional automatic greasing system

■ SUPPORTING CUSTOMERS WITH WORLD-CLASS PARTS & SERVICE

Four Parts Distribution Centers strategically located around the world provide a full range of original equipment and aftermarket parts that help maintain our customers' uptime. G.A.P., our Guaranteed Availability Program, guarantees that if a covered part is not available the next business day it will be provided to you FREE of charge.*

We also take that commitment into the field with the Hyster CERTECH® Certification training program. This technical training program provides both systems level as well as product-specific education to ensure lift trucks are repaired right the first time.



* Contact your local dealer for program details.

ERGONOMICS

OUTSTANDING ALL-AROUND VISIBILITY

■ CAB FEATURES

- A full-suspension, fully adjustable driver's seat with a seat belt, operator presence system and park brake warning buzzer.



- Large monochromatic display on the Load Moment Control system, with additional indicators for engine speed, travel speed and engine temperature.
- Optional color display with more features also available. Load moment indicators enable safe operation of the ReachStackers during 1st, 2nd and 3rd row stacking of containers.

- An adjustable steering column, power-assisted steering and lever controls, push-button parking brake and conveniently positioned gauge cluster.
- Adjustable armrest moves with the seat and pivots out of the way.
- Responsive hydraulic brakes, throttle and inching pedals in a convenient layout further contribute to driver confidence and comfort.

- Wide-angle rear view mirrors inside cab; outside rear view mirrors on front fenders.

- Comprehensive set of work lights and two orange flashing beacons.

- Large windows, fitted with tempered safety glass offer excellent all-around visibility.

- The optional air conditioning system with manual temperature control and air circulation fan is integrated into the heating and ventilation system.

- Proportional controls for the spreader rotation function and Powered Pile Slope (PPS optional).



ComforCab II – Top View



ComforCab II – Side View



The joystick provides an intuitive control of boom lift and telescope, and spreader functions.

■ ALL-AROUND VISIBILITY

- Rearward sloping counterweight and rear boom design enhances visibility for improved maneuverability.
- Length of counterweight extension from rear of the machine kept to a minimum to enhance visibility.
- Unique boom overhang design behind the boom mount offers maximum rear visibility even when the boom is at maximum raised height.
- No additional vision systems or cameras needed for most applications as a result of exceptional visibility.
- The pivot points for the boom are positioned at the back of the frame to minimize the boom overhang, resulting in a very compact machine. Rearward visibility is maintained, even when the boom is raised.

■ POWERED SLIDING CAB (OPTIONAL)

- The cab is positioned behind the lift cylinders near the center of the machine. This configuration is often preferred by operators, because it offers the most comfortable viewing angle when stacking containers 4 or 5 high.
- The cab can be moved to various positions by a convenient switch inside the cab while driving or lifting. The feature accommodates operator preference and provides optimum visibility in a variety of operating conditions.
- The partial forward (3 ft / .9 m maximum) cab position offers an unobstructed view of 40 ft and 45 ft containers, from low (trailer bed) height up to higher lifting heights. Cab entry/exit is only possible in the rearward position.

■ EASE OF INGRESS AND EGRESS

- Large running boards are designed for a high level of slip-resistance and provide easy snow and dirt removal on either side of the truck.
- Guard rails with convenient grip handles are strategically placed to ensure 3-point contact during truck entry and exit.
- Large doors tapered along the front structure of the cab frame with ergonomic locations of grab handles and broad steps further enhance ease of entry and exit.



PRODUCTIVITY

MORE CONTAINERS MOVED PER HOUR

The Hyster® RS45-46 series truck works harder, longer and faster and is among the top performing trucks in the industry. With its powerful 370 hp engine and smooth hydraulic functions, it's sure to do the job, and do it right.

■ EXCELLENT LIFT, LOWERING AND TRAVEL SPEEDS

Hyster® RS45-46 trucks deliver high productivity with 4-mode average speeds for lifting and lowering under laden and unladen conditions of 84.5 fpm (0.43 m/sec); very competitive in the industry at rated capacity.

TRAVEL SPEEDS

- 13 mph (21 km/h) with load
- 14 mph (23 km/h) without load

LIFTING SPEEDS

- 55 ft/min (0.28 m/sec) with load
- 94 ft/min (0.48 m/sec) without load means greater productivity when operating a Hyster® container handler.

LOWERING SPEEDS

- 91 ft/min (0.46 m/sec) with load
- 98 ft/min (0.50 m/sec) without load

■ AUTOSHIFT TRANSMISSION

All Hyster® ReachStackers feature the TE 32 powershift 4 speed auto-shifting transmission from Dana equipped with APC 200 electronic controllers. For Tier 3 markets, the TE 27 powershift transmission is also available as an option on certain models.

- Fully electronically controlled.
- Forward reverse lockout prevents change of direction at high speeds.
- Transmission protection system protects against high temperature and high/low oil pressure.
- “Soft-shift” characteristic features an electronic throttle-back function during gear change that eliminates shift shock on the driveline.

FUEL TANKS

219 gallon tank enables up to 48 hour continuous run time between fills.

All Tier 4 Final trucks come standard with a 15 gallon DEF that requires refill every other fill of the fuel tank.



■ PROTECTION SYSTEMS

An engine protection system, designed to prevent damage due to low oil pressure and high coolant temperatures, is standard equipment.

A transmission protection system, triggered by excessive oil temperature, is also standard equipment. In order to minimize damage to the truck, these systems will initially decrease the engine power when a problem is detected and will derate the engine to creep mode if immediate action is not taken.

■ TRUE INCHING CAPABILITY

All Hyster® trucks are equipped with auto-shifting transmissions paired with Cummins engines to provide inching capability and better control. The auto-shift transmissions enable smooth shifts that enhance the longevity of the drivetrain and enhance operator comfort by reducing jolt.

■ HIGH CAPACITY POWERTRAIN

TIER 4 FINAL

- Cummins QSL 9L turbocharged engine tuned for maximum horsepower and torque characteristics.
- Tier 4 after-treatment package.
- Maximum Horsepower: 363 Hp (271 kW) @ 2100 rpm.
- Maximum Torque: 1200 lb-ft (1627 N-m) @ 1400 rpm.
- Spicer Off-Highway TE 32 powershift transmission.
- Reduced fuel consumption with up to 22% total savings in fuel costs.

TIER 3

- Optimized engine for maximum horsepower and torque characteristics.
- Cummins QSL 11 turbocharged 6 cylinder engine.
- Maximum 365 Hp (272 kW) @ 2100 rpm.
- Maximum Torque: 1235 lb-ft (1674 N-m) @1200 rpm.
- Spicer Off-Highway TE 27 and TE 32 powershift transmission.



Twistlock module with indicator lights

■ SPREADER

- Hyster® ReachStackers feature spreaders with vertical twistlocks. Dedicated telescopic sideshift spreaders enable container handling for 20 ft or 40 ft ISO containers with heights of 8'6" to 9'6".
- Automatic locking occurs when the spreader is correctly positioned on the container. Unlocking is only possible by pushing a button in the cab.
- Twistlock module features indicator lights (1 red, 2 orange and 1 green) on the spreader and in the cab to ensure safe and productive operation.
- Powered pile sloping (optional) enables mechanical sideways articulation to handle containers from or onto a sloping surface.
- Mechanical twistlock interlock helps to ensure that twistlocks are fully engaged on all 4 corners prior to lifting a container.
- The lift-interrupt system feature helps prevent lifting a container with partially engaged twistlocks.
- A container counter is on the spreader.

NOTE: Tier 4 Final engines must run on Ultra Low Sulfur Diesel (ULSD) fuel with a maximum of 15 ppm sulfur content. Diesel fuel with a higher sulfur content than 15 ppm will compromise the emissions performance of the Tier 4 Final engine and may result in damage to components.

INNOVATIVE TRUCKS ENGINEERED TO MEET THE MOST DEMANDING APPLICATIONS

For more than 80 years, Hyster has been conquering the world's most demanding applications. In the 1920's Hyster started as a manufacturer of lifting machines used in the rigorous logging industry of the United States' Pacific Northwest. A few years later the first forklift trucks were invented and the Hyster brand quickly gained its reputation for rugged quality. Hyster® lift trucks are designed to lower your cost of operations. Every truck we make — gasoline, LPG, diesel and electric — is purpose-built to excel in its application. Every truck is also backed by an unmatched network of specialists.



Dealer Network — Our Dealer Network can offer the expertise of fleet managers, parts suppliers, capital procurement specialists and trainers. Hyster's carefully chosen dealers fully understand customer applications, assist in selecting the right lift truck and provide fast, reliable support.



Hyster Fleet Services — Even if you operate other brands, we can manage your maintenance and replacement plan. We can offer complete fleet analysis, fleet history summary and a cost-effective proposal for replacement and scheduled maintenance.



Parts — With genuine Hyster replacement parts and UNISOURCE™ parts for all makes of lift trucks, we are your one-stop source for lift truck parts. In fact, we offer more than 2 million part number crosses for most brands of materials handling and other in-plant mobile equipment.



Rental Products — When leasing or buying isn't a practical option, we have access to more than 14,000 units for short- and long-term rental. We'll help you maintain output in a cost-effective manner.



Hyster Capital — We can arrange solutions for special financing requirements, taking the difficulties out of buying the equipment you need. Whether you purchase or lease a new or used lift truck, Hyster Capital offers superior service and competitive rates.



Special Products Engineering Department (SPED) — Different materials require different handling. That's why we can work with you to customize your lift trucks. From strobe lights to specially made forks, SPED has the tools to help you get the job done right.



Operator Training — Proper education in operating lift trucks minimizes the risk of injuries due to accidents while increasing productivity. Hyster offers OSHA-compliant materials that support the training of qualified operators.




Service — Your local Hyster® dealer offers a flexible, customized and comprehensive maintenance plan based on each lift truck's operation environment. Hyster service programs offer scheduled inspections and maintenance, along with quick, responsive service dispatched to your location.





Hyster Company
P.O. Box 7006
Greenville, North Carolina
27835-7006
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