

H400-450HD/S SERIES



**STRONG PARTNERS.
TOUGH TRUCKS.™**

HIGH CAPACITY FORKLIFT TRUCK

H400-450HD/S SERIES

HIGH CAPACITY TRUCKS FOR HEAVY DUTY APPLICATIONS

Hyster Company has a long history of designing and building high capacity forklift trucks. The Hyster® H400-450HD/S series offers a Tier 4 Final powertrain featuring the Cummins QSB 6.7L engine with cooled Exhaust Gas Recirculation (EGR) and Selective Catalytic Reduction (SCR). Using tested and proven components to ensure high productivity, reliability and overall lower ownership costs, this truck offers a strong performance solution for your unique application. The truck has been engineered for ease of service while offering up to 22% lower fuel consumption* over prior Tier 3 products. The H400-450HD/S forklift series is also available with a Tier 3 engine for certain markets without reliable access to Ultra Low Sulfur Diesel Fuel (ULSD).

Over 80 years of heritage building tough forklift trucks is brought to bear in the H400-450HD/S forklift, available in four models for use in applications such as steel, breakbulk/stevedoring, concrete and mining applications among others.

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

Optional Hook Type Dual Function Sideshift Fork Positioner Carriage shown.



■ **DEPENDABILITY**

- Heavy duty masts & carriages
- Cummins engine and ZF transmission
- High capacity cooling system
- Heavy duty steer and drive axles

■ **LOW COST OF OWNERSHIP**

- Integrated systems design
- On-demand cooling
- Lower fuel consumption
- On-demand hydraulics
- Traction speed limiter (optional)

■ **SERVICEABILITY**

- Tilting cab for easy access
- Quick access to key components
- On-board diagnostics
- Longer service intervals
- Heavy duty cooling system

■ **ERGONOMICS**

- Excellent all-around visibility
- Designed for operator comfort
- Low noise
- Proportional hydraulic control

■ **PRODUCTIVITY**

- Full rated capacities
- Competitive speeds
- Cummins engine with ZF transmission
- Auto-shifting transmissions with inching capability
- Hyster Tracker compatible

DEPENDABILITY

ENGINEERED FOR TOUGH APPLICATIONS USING PROVEN COMPONENTS

■ HEAVY DUTY MASTS & CARRIAGES

The Hyster® H400-450HD/S forklift, has been designed and suited for particularly tough applications and engineered for long load centers, wide loads and heavy duty-cycle conditions. Carriages are available in two options: Hook Type Dual Function Sideshift Fork Positioners and Pin Type Dual Function Sideshift Fork Positioner.

The mast, with robust mast channels, rollers, stub shafts and chain anchors, is designed to excel in heavy duty applications. The sturdy mast design for this truck series enables less mast deflections while offering a number of 2-stage mast options for a wide variety of applications in multiple industries.

Greaseable load rollers with roller bearings ensure the front end provides years of dependable performance. Carriages are designed to have minimal capacity derate on sideshifting carriages, enabling the truck to provide close to full rated capacity under all operating conditions.



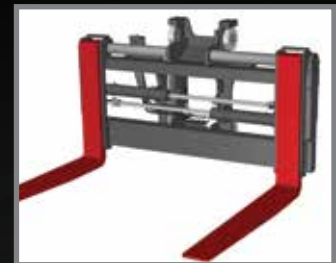
■ CARRIAGE & FORK OPTIONS

Different applications require different tools - customize your truck with available carriage and fork options on the H400-450HD/S truck series.

Hook type carriages enable quick connect coupling of forks enabling increased flexibility in the use of the truck for other applications. Pin type dual function carriages provide a rugged heavy duty solution for dedicated fork lift applications.



*Hook-type dual function
sideshift fork positioner*



*Pin-type dual function
sideshift fork positioner*

■ POWERTRAIN

- Cummins QSB 6.7L engine providing 230 peak horsepower (220 hp rated).
- ZF WG 211 5-speed powershift transmission with proven field experience and reliability. The 5-speed transmission features improved shift point selection with an overdrive gear enabling maximum efficiency of the drivetrain while limiting fuel consumption.
- The Tier 4 Final drivetrain includes an emission reduction package featuring cooled Exhaust Gas Recirculation (EGR), a Selective Catalytic Reduction (SCR) system for NOx reduction, a Diesel Oxidation Catalyst (DOC) for particulate matter (PM) removal and a Diesel Exhaust Fluid (DEF) delivery system.
- Tier 3 engines are available as an option for non-regulated markets, featuring a Cummins QSB 6.7L engine and ZF WG 211 5-speed powershift transmission for all models.



*H400-450HD/S Tier 4
Final Powertrain*

■ POWERTRAIN PROTECTION

- Software controls help prevent damage to the engine & transmission while enhancing component life by minimizing thermal degradation of engine, transmission and coolant fluids.
- Powertrain is protected from excessive temperature and pressure.
- Torque derate strategy is implemented for engine and drivetrain protection.
- Derate conditions activated on:
 - High coolant temperature
 - High transmission oil temperature
 - High air intake temperature
 - Low oil pressure

■ HIGH CAPACITY COOLING SYSTEM

- High capacity cooling system is designed for high ambient temperature conditions up to 113° F (45° C).
- Puller fan enables the cooling system to operate more efficiently by drawing cool, clean air from above through the radiator.
- Components last longer with cooler fluid temperatures.

■ HEAVY DUTY STEER AND DRIVE AXLES

- Hyster has collaborated with AxleTech to provide heavy duty drive axles with wet disc brakes to provide long life. The sturdy design enables longer service intervals on wearable service components.



AxleTech drive axle

LOW COST OF OWNERSHIP

MORE VALUE, LESS COST

Hyster understands that your total cost of ownership extends beyond the initial acquisition costs. Hyster has teamed with leading quality suppliers to provide well-integrated systems that help reduce your overall cost of operations over the life of the truck.



Cummins QSB 6.7L Tier 4 Final Engine with Aftertreatment



Cummins QSB 6.7L Tier 3 Engine



On-demand cooling fan

■ INTEGRATED SYSTEMS DESIGN

Unique partnership with Cummins enables a harmonized powertrain featuring a Cummins QSB 6.7L engine paired with the ZF WG 211 transmission.

- Powertrain solution is optimized for maximum performance and improved fuel economy.
- Low-hassle Tier 4 Final solution requires no use of Diesel Particulate Filter (DPF) or active regeneration; utilizes urea-based SCR system with a diluter for lower exhaust temperatures.
- Innovative ECO modes: Hi-P and e-Lo (Tier 4 Final)
 - Hi-P provides maximum performance and good fuel economy.
 - e-Lo provides minimum fuel consumption while maintaining good productivity.

Tier 3

- The Tier 3 solution with no after-treatment continues to be available in all non-EPA regulated markets including Latin America and Brazil.

■ ON-DEMAND COOLING (TIER 4)

- A proportional, viscous cooling fan draws power only when cooling is required, unlike direct drive fans which draw high levels of power at all times.
- Reduces accessory loads on the powertrain, consumes less fuel and lowers noise levels.

■ ROBUST HYDRAULIC SYSTEM

- Leak-free o-ring face seal fittings are used throughout the truck for enhanced reliability.
- Smart placement of the control valve and hose routing away from heat sources reduces operating temperature, extending the life of seals and hoses for enhanced reliability.

■ TOTAL SYSTEM FUEL SAVINGS

Fuel consumption is a key driver to the total cost of ownership for high capacity lift trucks. Hyster provides a truck with superior fuel consumption characteristics compared to similarly sized trucks offered by the competition. A number of complementary technologies work together to deliver total system fuel savings including:

- On-Demand Hydraulics - Up to 10% fuel savings
- Intelligent Powertrain design with ZF transmission and advanced controls featuring ECO selectable modes - Up to 10% fuel savings
- On-Demand Cooling - Up to 5% fuel savings

Advanced controls enable Hyster® model series H400-450HD/S trucks to provide peak performance and operating efficiency while delivering cumulative great fuel economy and durability.

**Cumulative fuel savings results will vary based on application, physical environment, fuel quality, etc.*





■ ON-DEMAND HYDRAULICS

New to this truck, the Hyster® on-demand, load-sensing hydraulic system is designed to deliver flow only when required. A variable displacement pump, capable of more oil displacement even at low pump speeds, means the engine runs at lower speeds, extending the life of components while operating more quietly. The system consumes up to 10% less fuel than a typical fixed displacement hydraulic system while producing less heat. Oil and filters last longer; hoses, seals and components also wear less and last longer.

■ TRACTION SPEED LIMITER (OPTIONAL)

This system reduces traction speeds and can be pre-set to suit varying customer applications:

- Unconditional traction speed limiter to set the maximum speed.*
- Loaded traction speed limiter – limits traction speeds to a set point when a specified load weight is sensed on the forks. Factory preset to 8 mph and activates at 10% rated load.

This feature helps drivers to operate the truck in an optimal manner with regard to site limitations. Traction speed limiter settings are adjustable by your Hyster® dealer.

* Less speed means lower fuel consumption

■ AUTOMATIC THROTTLE-UP

Automatic throttle-up, available on Hyster® H400-450HD/S trucks, provides automatic response to lift inputs from the operator when the lift lever is activated. A single-touch lever or joystick-controlled rev-up keeps the engine in the most efficient band delivering good fuel economy. Given the improved operator ergonomics, this feature enhances productivity. Automatic throttle-up feature applies only when the truck is in neutral.

■ EMPTY SEAT ENGINE SHUTDOWN (OPTIONAL)

This feature reduces fuel consumption by shutting down the truck when the operator is out of the seat for extended periods of time, thus limiting idle hours on the truck. Empty seat engine shutdown is programmable to activate within a 3-15 minute window after an operator leaves the seat. Factory preset to 15 minutes, the setting is easily adjustable by the customer with minimal tools, lowering the total cost of ownership over the useful life of the truck.

SERVICEABILITY

ACCESS MAJOR COMPONENTS IN SECONDS



Broad running boards



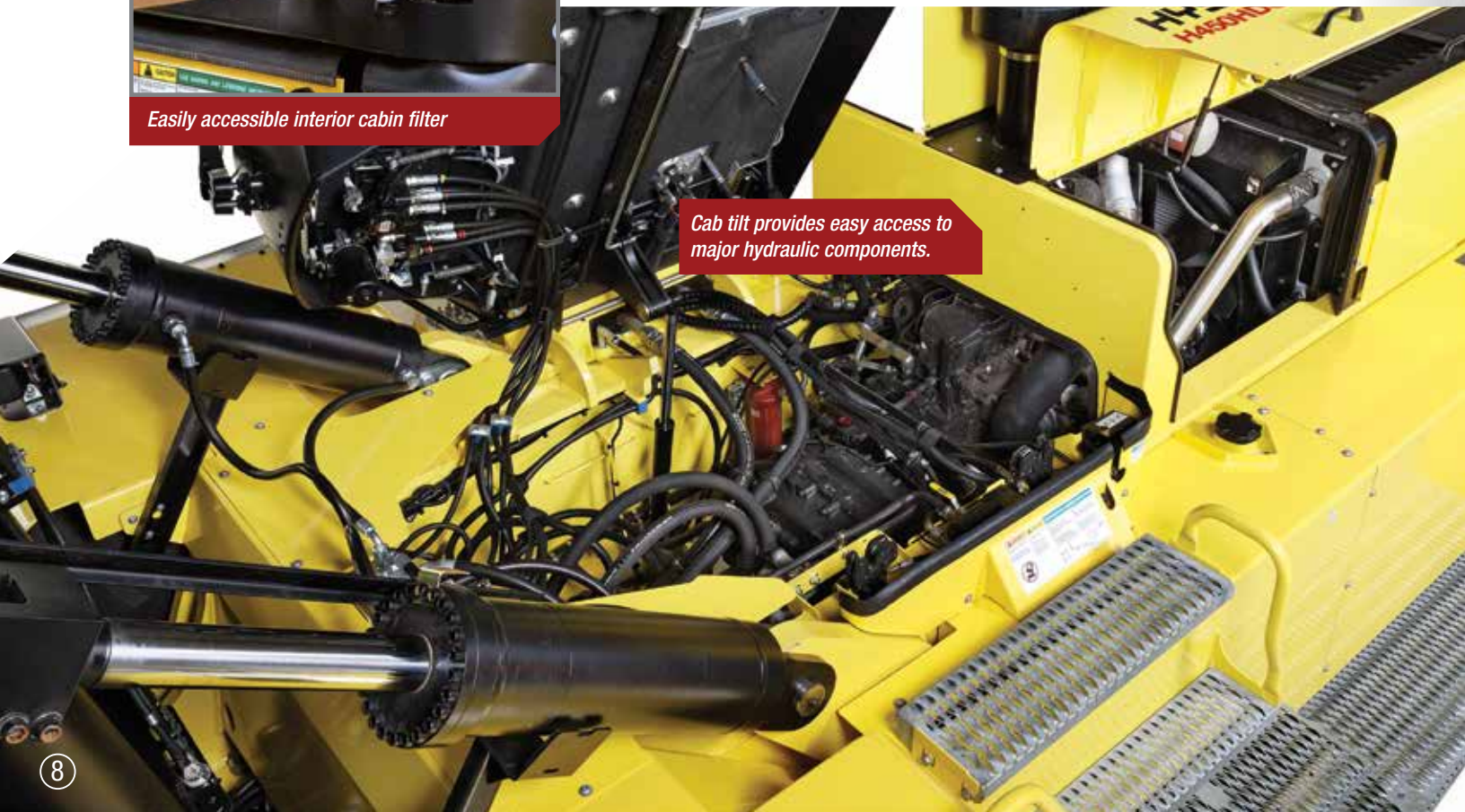
Easily accessible interior cabin filter

■ EASE OF SERVICE

Hyster® trucks have been designed with the service technician in mind. Gull-wing hoods provide quick access to key components, and daily checks don't require tilting the cab. A tilting cab provides easy access to hydraulic components in seconds. Broad, slip-resistant running boards foster quick daily checks, while ample room enables easy access for radiator cleaning. A hydraulic sight gauge enables at-a-glance fluid level checks.

■ ON-BOARD DIAGNOSTICS

CANbus on-board diagnostics is available for easy servicing and troubleshooting. Error codes are provided on an LCD display for quick and effective identification of service issues while enabling rapid implementation of remedies, reducing downtime and frequency of repairs.



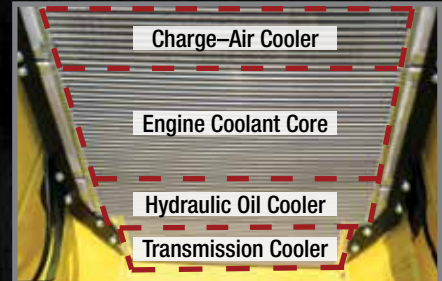
Cab tilt provides easy access to major hydraulic components.

■ LONGER SERVICE INTERVALS

Major engine and drivetrain components are engineered to operate on 500-hour service intervals. Extended hydraulic oil change intervals of up to 8000 hours (with sampling) ensure that the truck remains in operation with longer time between oil changes or servicing.

■ COOLING SYSTEM

- Designed for heavy duty cooling applications requiring additional cooling capacity.
- Cooling cores are packaged such that cool air (not pre-heated air) is channeled across cores.
- Quad-core radiator features four separate cooler cores.
- Cool overhead air is drawn in for more efficient cooling than in stacked radiator configurations.
- Louvered cooling fins for maximum air flow to radiator.
- Hinged hood pivots at wide angles to provide easy access to cooling system.
- Easy to clean since coolers are not stacked in front of each other.



Quad-core configuration enables efficient cooling



Hinged cover enables easy serviceability access to radiator cooler

■ 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

■ DESIGNED AROUND THE OPERATOR

As in all Hyster® big trucks, operator controls are conveniently placed within a spacious cab for maximum comfort to increase operator productivity. Mini-levers or joysticks and switches are integrated into the armrest for smooth controlled actuation of mast and attachment functions. The armrest moves with the seat to maintain the driver's control, even when driving over uneven surfaces.

- On the exterior, the sloping counterweight enhances rearward visibility and the sight line to the steer tires which helps in maneuvering and avoiding obstacles.
- Quiet operation is enhanced by lower engine speeds due to on-demand hydraulics.
- A fully adjustable steering column and seat with integrated armrest controls comes standard for all H400-450HD/S trucks.



Low profile carriage for clear line of vision

■ CAB COMFORT & VISIBILITY

A low profile carriage enables a clear line of vision for an optimized view of fork tips. Forward visibility is uncluttered by the position of hydraulic valves, hoses or mast cross-members with a clear view through the mast window. Canted hoses are arranged along the line of sight so the operator sees only one hose and has good visibility.

Rear and side visibility are not impeded by structural elements of the truck. Reinforcement pillars are pushed out of the corners, which enhance operator visibility.

A curved tempered glass windshield provides an uninterrupted front end view. Likewise, a curved rear windshield provides excellent rearward visibility over the operator's left and right shoulders.



Adjustable steering wheel with spinner knob

■ LOW NOISE – OPERATOR & ENVIRONMENT

With minimal noise at the operator's ear (73 dBA BITA) cabin interior noise ranks among the lowest in the industry, which enhances operator alertness and productivity.

■ PROPORTIONAL HYDRAULIC CONTROL

All H400-450HD/S trucks are now equipped with electro-hydraulic controls which enable more precise control of hydraulic functions and lead to better productivity.



Broad, slip-resistant running boards

PRODUCTIVITY

MORE LOADS MOVED PER HOUR

■ RATED CAPACITIES

All models in this truck series offer full rated capacities at required load centers. Hyster has worked to ensure minimal derate compared to others in the industry.

- Full rated capacity at 40,000 lbs. with pin type dual function sideshift fork positioner carriage on the H400HD/S models
- Full rated capacity at 45,000 lbs. with pin type dual function sideshift fork positioner carriage on the H450HD/S models
- Only 1,000 lbs. derate on the hook type dual function sideshift fork positioner carriage on all models

■ LIFTING, LOWERING & TRAVEL SPEEDS

STANDARD WHEEL BASE H400-450HD TRUCKS

Hyster® Standard Wheel Base forklift trucks deliver high productivity with 4-mode average speeds of 90 ft/min (0.46 m/s)*, very competitive in the industry at rated capacity.

Travel Speeds:

- 16 mph (25 km/h) with or without load (H400-450HD)

Lifting Speeds:

- 89 ft/min (0.45 m/s) with load (H400HD)
- 98 ft/min (0.50 m/s) without load (H400HD)
- 75 ft/min (0.38 m/s) with load (H450HD)
- 83 ft/min (0.42 m/s) without load (H450HD)

Lowering Speeds:

- 98 ft/min (0.5 m/s) with or without load

SHORT WHEEL BASE H400-450HDS TRUCKS

Hyster® Short Wheel Base forklift trucks deliver an optimum combination of compactness, nimbleness and agility for applications with space constraints requiring a tighter turning radius. Travel speeds of 16 mph (25km/h) with or without load.

* Average speed calculated using: laden lift speed (ft/min) at full rated capacity; unladen lift speed; laden lowering speed at full rated capacity; unladen lowering speed.



■ AUTO-SHIFTING TRANSMISSION WITH TRUE INCHING

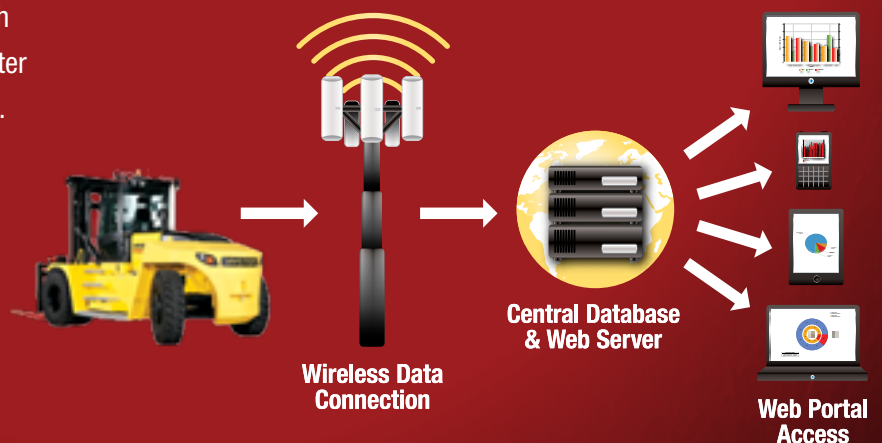
This truck series is equipped with ZF transmissions paired with Cummins engines to provide inching capability and better controllability. The auto-shift transmissions enable smooth shifts that enhance the longevity of the drivetrain and operator comfort by reducing jolt.

Competitor trucks utilize de-clutch which makes it more difficult to precisely control the truck while lifting.



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

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.





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