

# Lowering the emissions from heavy forklifts

The new Tier 4i/Stage IIIB low emission engines which provide fuel savings of up to 15% and reduced emissions are now fitted to the new 25-32 tonne range of Hyster forklifts.

LAUNCHED in 2010, nine 'Big Truck' models are available, three of which are ultra compact. The range includes four conventional forklift models with between 25 000kg and 32 000kg lifting capacity at 1200mm load centre. Three new ultra-compact models are built for operations where space is limited, with wheelbases of between 3.655m and 3.935m, and there are two container handlers which have a dedicated carriage for the container spreader.

All models now feature the Tier 4i/stage IIIB compliant engines which are expected to deliver lower overall exhaust emissions and fuel savings. The robust powertrain also ensures increased dependability for long periods of peak power operation with protection for the engine and the 3-speed transmission.

The Hyster assembly line in Nijmegen, The Netherlands is already building the 25-32t range featuring the new Cummins QSB 6.7 engine (up to 270hp, 201kW) which delivers rapid boost at low engine RPM and then maintains high boost at higher RPM independent of engine speed. This is due to the Variable Geometry Turbocharger (VGT™) which varies the exhaust gas flow into the turbine wheel.

In addition to the Cummins engine technologies, Hyster has introduced new performance optimisation developments, such as cooling on demand, RPM management and alternate engine idle speed, to help further reduce the total fuel consumption. The trucks only provide maximum power on demand, when it is really needed, with load-sensing hydraulics that 'feel' the load weight being lifted.

As maximum loads are not always handled (and many lift events are without load), the trucks do not require maximum engine power at all times and therefore less fuel will be consumed. The operating speed of the hydraulic functions (lift, tilt, sideshift, fork-positioners) can also be adjusted to suit the requirements of

**The Hyster 28t forklift is one of nine models fitted with Tier4i/Stage IIIB compliance low emission engines**



a specific application.

The trucks are also highly versatile thanks to the 'dual-function' carriage. The hook-style design with a 'quick-disconnect' (dis)mounting feature for the forks enables fast exchange between forks and attachments such as coil rams. Sideshift and fork-positioning functions are featured as standard, and include two fork-positioning working ranges, enabling a uniquely wide 'in-to-in' or 'out-to-out' range of the forks. The masts offer extra strength thanks to their '6-roller' construction, for heavy lifts up to 6.20m high.

For the operator, the Hyster 'Vista' Operator Compartment offers excellent comfort, outstanding ergonomics and a low noise level. The design of the cab provides the operator with excellent all-round visibility, and particularly of the operating area. The cab is ideally positioned, mid-high and towards the front, for optimal visibility, which offers excellent vision sideways and rearwards, boosting driver confidence and performance.

Tier4i/Stage IIIB compliance has been made easy for the operator by using Exhaust Gas Recirculation (EGR) engine technology, which means that the end user does not have to change the way it operates. Diesel fuel is simply added to the tank in exactly the same way as before and the engine does the rest with no

additional equipment, additives or maintenance regimes – unlike Selective Catalytic Reduction (SCR) technology.

Operators can also select either an ECO-eLo 'fuel efficiency' or HiP 'high performance' mode. The HiP mode is the normal operating mode, whereas the ECO-eLo mode reduces the maximum engine speed and optimises fuel efficiency.

Maintenance requirements are kept to a minimum with features such as oil-immersed brakes and increased service intervals, contributing to lower overall operating costs. The tilting cab, which ensures easy access to key components, also makes servicing easier. The entire Hyster 'Big Truck' range is available with various configurations and options to suit specific application requirements and this model is also available with Tier 3/Stage IIIA compliant engines for some regions.

The Hyster Company is part of NACCO Materials Handling Group, Inc headquartered in Cleveland, Ohio, and is a wholly owned subsidiary of NACCO Industries, Inc.

The name 'Hyster' is a corruption of the early logging industry command 'Hoist 'er' where Hyster first supplied sidelif trucks in 1929.

For more about Hyster, its global distribution network and the new Tier 4i/Stage IIIB engines, visit [www.hyster-bigtrucks.com](http://www.hyster-bigtrucks.com) ■

## Energy Chains replace cable festoons in gantry crane

WHEN a manufacturer of gantry cranes found its expensive festoon systems were failing as a result of corrosion, the company turned to plastics component specialist igus for an alternative solution. The global manufacturer of various types of industrial lifting equipment now uses igus Energy Chains cable carriers on its gantry cranes.

An igus Energy Chain System is mounted horizontally on each machine where it guides and protects over 75m of power cables. The cable carriers deliver a longer service life than the festoons in the dusty, humid environment. As well as accommodating high ambient temperatures, which can peak at 50°C, these may be accompanied by up to 100% humidity levels.

igus Energy Chains feature openable cross-bars to facilitate quick and easy access to the cables, which can be opened using a screwdriver or by hand. In contrast to a festoon system, which allows the dangling cables to move around in an uncontrolled way, the igus Energy

Chain offers better protection and stops the cables from moving around and catching on other equipment or structures – this results in a significant reduction in downtime and also eliminates corrosion problems associated with festoon rollers and trolleys.

igus delivered the cable carriers as ReadyChains: a pre-assembled, out-of-the-box system complete with the Energy Chain cable carrier, igus Chainflex continuous-flex cables, connectors, and other accessories. ReadyChain saved the customer time and eliminated storage costs significantly.

igus has been developing, producing and testing plastic Energy Chain cable carriers for forty years.

They are capable of long and short travel distances at high speeds in all orientations. igus Energy Chains can be used in a variety of applications from machine tools and construction equipment, to packaging machines, medical devices and cleanroom applications. ■

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### Robust plastic energy chains prevent snagging of crane power cables

