

BT Reflex 1.4 – 2.5 ton Reach Trucks



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TOYOTA

MATERIAL HANDLING

stronger together



The new BT Reflex range

Safety – Productivity – Driveability – Durability

Toyota Material Handling presents the new **BT Reflex** generation of advanced reach trucks. BT Reflex has been setting industry standards in reach truck design for over a decade and this, the new fourth generation, continues to maintain the highest standards of safety, productivity, driveability and durability.

BT Reflex offers a complete range of models with capacities from 1.4–2.5 tons, each with class-leading performance. All trucks in the range feature an advanced new transitional lift control system, which achieves high-speed yet completely smooth lifting and lowering, significantly increasing productivity with faster work cycles while maintaining safety in operation.

Depending on the demands of your operation you can upgrade different characteristics of the truck with plus formulas. The Safety+ formula includes, for example, electronic speed control of the truck's operation according to the handling situation. The Productivity+ formula gives a top speed of 14 km/h, and the Driveability+ formula includes BT's advanced tilting cab system for improved operating conditions when working at higher levels. In fact, all models can be specified with tilting cab, coldstore or drive-in racking specification.

The new BT Reflex generation of reach trucks is built on a foundation of intelligence – intelligent design for maximum safety in operation, intelligent driving characteristics, and intelligent performance control for maximum productivity. We call this '**i-reach**'.

Safety – central to BT Reflex

Reach trucks work in the most demanding situations, often in congested and narrow aisles, handling loads up to 2.5 tons and with lift heights that can be in excess of 12 metres. It is therefore not surprising that, when talking to reach truck users, they place a strong focus on safety – and safety is central to the design of the new generation of BT Reflex trucks.

Safety in the cab

Keeping the driver safe is a key priority. The cab is designed to ensure that the driver is safely seated well within the profile of the truck, and that the overhead guard gives real protection from above, with its carefully designed, angled structure.

The driver needs a PIN-code to activate the truck, which ensures use only by authorised personnel. The truck can be programmed so that the PIN-code determines the performance characteristics of the truck, according to the experience of the driver. Sensible logic also contributes to the design of BT Reflex. For example the pedals are laid out as in a car for maximum familiarity, and every time the truck is stationary the electronic parking brake is automatically applied – and automatically released when the accelerator is pressed. A direction indicator continuously displays the current direction of travel, to ensure safety when starting out.

Totalview concept

Having a clear, unobstructed view throughout the handling process is essential for maintaining maximum safety standards. BT Reflex has carefully considered all aspects of visibility. We call it 'BT Totalview'.

Visibility for driving

When driving in the cab direction, BT Reflex gives a panoramic view for the driver. The overhead guard support is oval in design, and the rear support features a visibility window.

Visibility for manoeuvring

The driver's view around and through the mast is maximised to allow safe positioning of the truck and the load.

Upward visibility

The design of the overhead guard has been carefully considered to not only provide protection but also to allow a clear view upwards when placing and retrieving loads.

Forward visibility

The driver console is low and slopes away from the driver. This gives maximum forward visibility from the cab when manoeuvring in congested areas.



BT Reflex has carefully considered all aspects of visibility

Reflex+ Safety

For even higher levels of safety in operation BT Reflex offers a Safety+ formula that provides a number of enhanced features:

Automatic speed control

The Safety+ formula allows different aspects of the truck's performance to be adapted to suit the handling situation:

- optimised acceleration with lifted load
- optimised speed and acceleration with reached-out mast
- optimised speed when cornering
- lift height limited when speed exceeds 6 km/h
- reach speed adapted to suit lift height and load weight

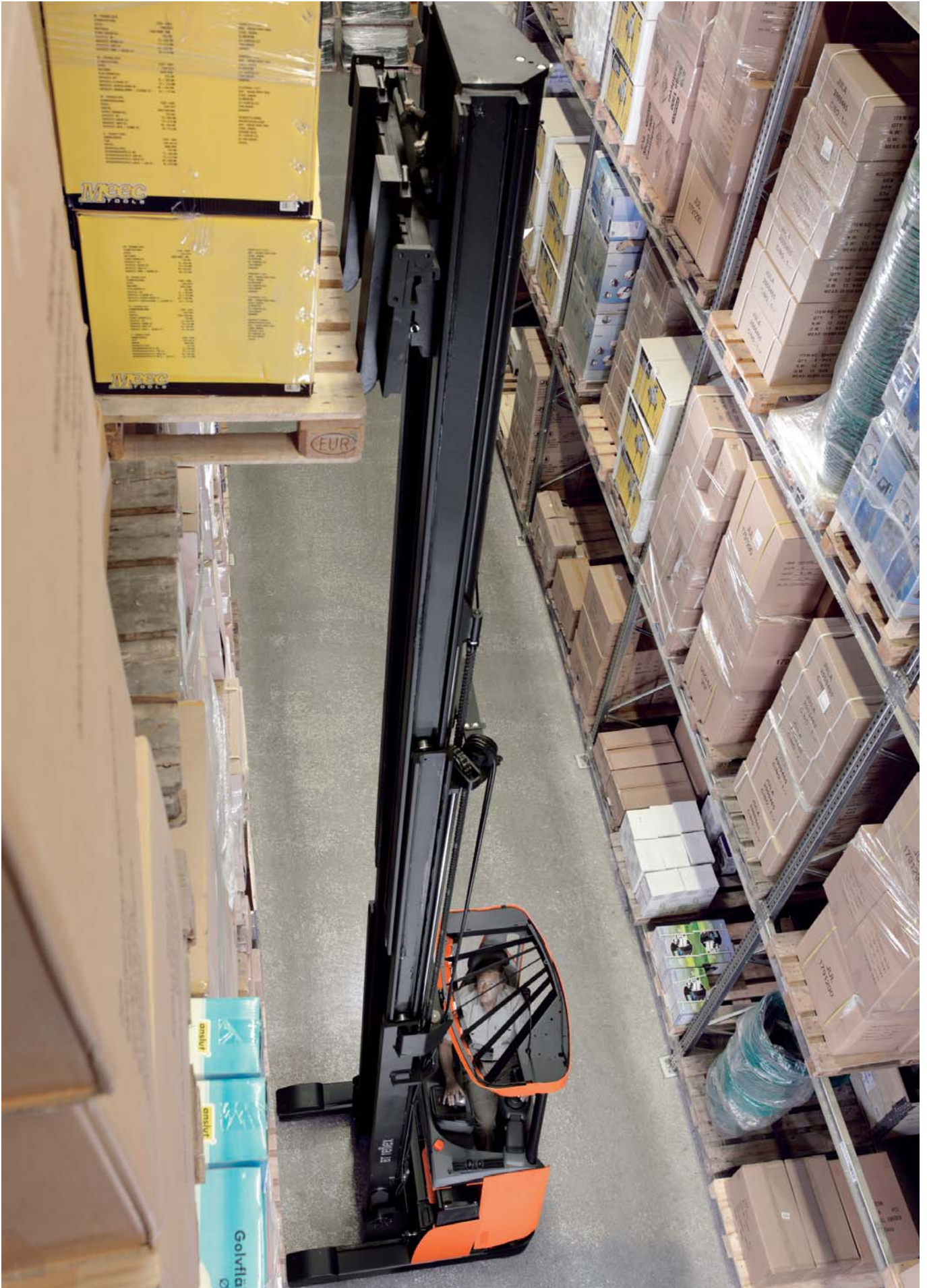
Height indicator

This provides accurate information on a special eye-level load information display to enable the driver to quickly and accurately raise or lower the forks to the required height.

Load weight indicator

This enables the driver to check that loads are within the rated capacity for the truck. It also allows loads weights to be verified as part of the handling process.







Productivity is key

Most reach trucks form part of a complete logistics system where, alongside safety, assured levels of productivity are essential. The new BT Reflex generation of reach trucks has been designed to deliver the highest levels of throughput.

Fast work cycles

Productivity is all about work cycle rate and, while the travel distances and lift heights may vary between applications, work cycles for reach trucks will always depend upon speed of operation for both horizontal travel and vertical fork movements.

Acceleration is usually a key factor, with trucks often making frequent transits over relatively short distances. BT Reflex offers exceptional acceleration rates and, if longer travel distances are required, the Productivity+ formula allows a top speed of 14 km/h (see below).

The advanced 360° steering system on all BT Reflex trucks allows exceptional manoeuvrability. It also means that the direction of travel can be changed in one smooth and continuous movement, thereby maintaining the highest work rate. The steering is electronic and progressive, which means that it is effortless for the driver.

However, it is equally important to have high vertical performance levels, and this is where the BT Reflex range really makes a difference. These new trucks not only offer very high lift and lower speeds but, importantly, these high speeds are realisable in operation. An advanced new transitional lift control system means that even at maximum speed the lift and lower movements are completely smooth – protecting the load and assuring safety in operation.

Similarly the reach movement is damped to ensure fast yet smooth operation, and the simultaneous hydraulic control system allows, for example, lift and reach movements to be combined, once again improving work cycle rates.

Energy efficiency

BT Reflex trucks are powered by AC motors, which ensure maximum energy efficiency. Consumption rates are low on all BT Reflex models, with the added benefit of energy being recycled on deceleration and braking. For multi-shift operations BT Reflex can interface with battery change systems and the battery can be quickly and easily power-released while the driver is seated in the cab.

Height pre-selection, with height and weight indication

This option allows frequently accessed lift heights to be pre-programmed for fast and accurate stacking. The pre-selection system differentiates between placement and retrieval cycles, accurately controlling fork movements throughout the process. Information is displayed on the load information display, which also shows lift height and load weight.



The advanced 360° steering system on all BT Reflex trucks allows exceptional manoeuvrability



The optional E-bar is designed to carry ancillary equipment, offering standard interfaces and a built-in power supply

Reflex+ Productivity

For applications that demand the highest levels of productivity BT Reflex has the option of the Productivity+ formula. This gives the greatest travel speed and ensures that Reflex fits into your application.

High top speed

The Productivity+ formula allows travel speeds up to 14 km/h – particularly suited to longer travel distances.

Horizontal E-bar with power supply and PC kit

Equipped with a horizontal E-bar, including 12 V power supply and PC kit, which allows easy connection of an on-board computer, Reflex's productivity is further enhanced thanks to full integration into the most sophisticated operations.

Setting driver standards

The BT Reflex range has consistently set the highest standards when it comes to driveability – providing the best driving characteristics and therefore achieving the highest performance from the operator. This latest generation of machines continues to set new standards.

More comfort – less fatigue

Comfort is essential to get the best from your operators, and the full work cycle needs to be considered. This includes mounting and dismounting the cab. The BT Reflex has a very low step-in height which, combined with the easy-grip overhead guard post, means minimum effort is required, reducing strain over full working shifts. Also, the steering console folds forward to make life even easier.

All controls on the BT Reflex range are effortless to use. The electronic steering system uses a small spinner-style steering wheel. Steering is progressive, meaning minimum turns of the wheel are required when fine positioning. All hydraulic functions are fingertip-controlled.

Perfectly driver-adapted

Drivers come in all shapes and sizes. BT Reflex is designed to adapt perfectly. The seating position is fully adjustable, as are the split controls. The steering console can be adjusted for height, lateral distance and incline, and the control console is also adjustable to create the perfect driving position for each operator.



Standard mini-levers allow fingertip control of each fork movement

There is a choice of hydraulic control units. The standard mini-levers allow fingertip control of each fork movement. Alternatively the optional multifunction control unit can be selected, depending on the preference and experience of your drivers. These units are interchangeable, for maximum flexibility.

Clear, concise information

The BT Reflex range provides complete information to the driver via an intuitive information display, including:

- battery discharge indicator
- steering wheel direction indicator
- main drive direction indicator
- power mode indicator
- parking brake indicator
- service and maintenance indicator
- calendar and clock

The multifunction display is also used to set performance parameters and to allow fault diagnosis. In the event of a detected fault during operation the display will immediately alert the driver.



An optional multifunction control unit can be selected, depending on the preference and experience of your drivers

Reflex+ Driveability

To further enhance the driver experience with BT Reflex an optional Driveability+ formula provides additional features. The Driveability+ formula is particularly suited to applications that require frequent higher-level stacking.

Tilting cab

The main feature of the Driveability+ formula is the tilting cab system – unique to the BT Reflex range. Repetitive high-level work can ordinarily result in a risk of neck strain for the driver. The advanced tilting cab system addresses this concern by automatically tilting back as the forks are raised to provide the

driver with a comfortable and clear view when working at height. The tilting movement can be programmed to suit the application.

Automatic fork levelling

Another valuable feature that forms part of the Driveability+ formula is an automatic fork-levelling facility, which enables the driver to level the forks at the touch of a button.

Armrest

The Driveability+ formula also provides additional comfort for the driver with an ergonomically designed armrest.





Durability means uptime

Reach trucks invariably work as part of an integrated process, in which having all machines available for work is essential – hence today's focus on 'uptime'. BT Reflex trucks have been designed and are built to ensure the highest standards of durability, quality and reliability. Periodic servicing is, of course, necessary but time for servicing has been reduced to the absolute minimum.

Quality and strength

BT Reflex trucks have been developed over successive generations with quality and strength as key components. Today's trucks are built to Toyota Production System standards, further improving the focus on quality. The latest generation of trucks feature heavy-duty drive units and gearboxes, and the entire construction of a BT Reflex truck is intended for the most demanding applications.

Designed for reliability

BT Reflex trucks have been developed through a continuous process of improvement. As a result, reliability standards are exceptional. This is partly achieved by reducing the overall number of components. It is also achieved by designing-in reliability with, for example, sealed electrical units, brushless motors and leak-free hydraulic connectors. Attention to detail ensures reliability in operation – which in turn delivers maximum uptime.

Reduced time for servicing

Routine servicing and safety checks are of course essential. It is also important to keep time lost to servicing to the absolute

minimum. The latest generation of BT Reflex reach trucks has extended service intervals due to the use of long-life or maintenance-free components. On-board diagnostics can quickly pinpoint any faults as they occur and ensure that remedial action is fast and effective. This is further supported by exceptionally easy service access to all areas of the truck.



BT Reflex has durability designed-in with its sealed electrical units, brushless motors and leak-free connectors

Our commitment to the environment

Toyota Material Handling believes that environmental responsibility is a cornerstone of good business practice. In line with the Toyota Industries Corporation (TICO) Environmental Action Plan we design-in environmental improvements to our equipment and processes to limit environmental impact throughout the four product life cycle stages: development, manufacturing, operation and recycling. Technologies currently being evaluated are designed to maintain the excellent productivity and performance of our products.

TMHE's production centres in Ancenis (France), Bologna (Italy) and Mjölby (Sweden) – where the BT Reflex is manufactured – are all ISO 14001 certified. With its emphasis on eliminating waste, the Toyota Production System (TPS) helps to reduce the environmental impact of our manufacturing activities. CO₂ emissions, water consumption, waste-water generation and landfill quantities have all been reduced, while recycling levels for

packaging, water and scrap have been raised. Hazardous substances and air pollutants have also been reduced.

Moving towards the creation of a recycling-oriented society, TMHE seeks to continuously improve the recyclability levels of its products. The new BT Reflex is designed to be highly recyclable, with recoverability levels of more than 99% at end of life.

The range



RRE140



RRE180



RRE250



RRE160E
tilting cab *



RRE200

* All models can be specified with tilting cab, coldstore, or drive-in racking specification.

Choose the features that suit your needs

Safety	Standard	BT reflex [®]	Option
Automatic parking brake	x		
BT Access Control	x		
Clear-view mast	x		
Clear-view overhead guard	x		
Driver detection system	x		
Emergency cut-off	x		
Parking brake	x		
Pedals as in a car	x		
Programmable performance	x		
Tilting forks	x		
Automatic speed control		x	
Height indicator		x	
Load weight indicator		x	
Enclosed cab			x
Load support			x
Warning beacon			x
Working lights			x
Productivity	Standard	BT reflex [®]	Option
Adjustable width over forks	x		
Battery status indicator	x		
Battery discharge prevention system	x		
E-bar (vertical)	x		
Heavy-duty battery compartments	x		
Storage compartments	x		
Electronic support arm brakes (standard on RRE180–250)		x	
E-bar (horizontal)		x	
Keyboard holder		x	
PC kit		x	
Power supply (12 V) with connector		x	
Battery change facility			x
Camera/monitor system			x
Electronic height indicator			x
Fork spreader			x
Height pre-selection			x
High-capacity battery models			x
High performance models			x
Integrated sideshift			x
On-board data terminal mount			x
Sideways battery change			x
Writing table			x
Driveability	Standard	BT reflex [®]	Option
360° progressive steering	x		
Adjustable BT control console	x		
Adjustable backrest	x		
Adjustable seat	x		
Adjustable steering wheel	x		
Automatic deceleration	x		
Automatic speed control	x		
Creep speed function	x		
Electronic braking system	x		
Electronic regenerative brakes (motor)	x		
Electronic fingertip controls	x		
Information display	x		
Low step-in	x		
Mini-joystick electronic controls	x		
Power/Electronic steering	x		
Split control panel	x		
Steering direction indicator	x		
Armrest		x	
Automatic fork levelling		x	
Tilting cab		x	
Automatic fork centering			x
Adjustable seat with safety belt			x
Multi-function control			x
Durability	Standard		Option
Drive motor temperature warning	x		
Easy access for maintenance	x		
Electronic controller temperature warning	x		
Fault diagnosis facility	x		
Historic fault log	x		
Hour meter (working hours)	x		
Lift motor temperature warning	x		
Special applications	Standard		Option
Coldstore version			x
Drive-in racking cab			x
EEx version (ATEX)			x
Heated seat			x

The individual features offered as part of BT Reflex⁺ formulas are also available as individual options.

Materials handling for Europe

Over the years, Toyota has developed a strong European presence, establishing close geographic links with its customers in order to better respond to their needs. With operations in more than 30 countries, Toyota Material Handling Europe (TMHE) has European Office functions based in Ancenis (France), Bologna (Italy), Brussels (Belgium) and Mjölby/Linköping (Sweden) and production centres in Ancenis, Bologna and Mjölby.

Toyota Material Handling Group

Toyota Material Handling Group is the materials handling division of Toyota Industries Corporation, with operations around the world and production facilities in Europe, Japan, China and the United States. By investing heavily in new engineering technologies and manufacturing techniques, Toyota aims to bring customers the best materials handling products and services on the market.

Toyota Production System

The Toyota Production System (TPS) empowers team members to optimise quality by constantly improving processes and

eliminating unnecessary waste of resources. TPS includes a common set of knowledge, values and procedures, entrusts employees with well-defined responsibilities in each production step, and encourages each staff member to strive for overall improvement.

Today, TPS is the acknowledged reference among automotive manufacturers and related industries. Our methods enable businesses to achieve sustained gains in productivity while satisfying customer expectations for quality and reliability.

Research & Development

Toyota Material Handling Europe benefits from Toyota's vast experience in the automotive industry, especially in engine development. By taking full advantage of the group's massive R&D facilities and engineering expertise, Toyota has developed a number of world-class technologies. Intelligent use of electronic and computer controlled devices has also made a significant contribution to creating more ergonomic and user-friendly operator environments, contributing to safety in the workplace.



Empowering your business

Our services and solutions are designed to provide different levels and types of support in response to individual customer's needs. This approach gives our customers the power to focus on their core business.



Toyota Service Contracts



Toyota Rental Solutions



Toyota I_Site

A stronger network

Toyota Material Handling Europe (TMHE) aims to be close to every one of its customers and accomplishes this by working with local teams to implement the organisational model that best serves local customer needs.

Each of our marketing and sales companies is strategically located to offer optimal market coverage and service convenience to keep customers' businesses running smoothly. Wherever customers are located in our vast coverage area, they can be sure of receiving consistent and high-quality products and services.

By integrating the existing Toyota and BT operations in many countries and developing new organisations in emerging markets, TMHE has developed a network of 400 sales and service centres and nearly 5,000 highly trained service engineers, covering more than 30 countries across Europe. This is an on-going programme and TMHE will continue to develop organisations to meet customers' needs throughout an expanding European market.





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