

## **WAV 60** SERIES

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### The mobility revolution

Crown's Work Assist Vehicle<sup>®</sup>, the Wave, is a revolutionary mobile productivity tool that enables one person to efficiently and safely do the work of two. It dramatically changes the way work is accomplished, eliminating time-consuming ups and downs, and minimising the risks of using rolling ladders. Plus, it provides the ability to elevate and travel simultaneously in one smooth motion.

Beyond easing work and boosting productivity, the Wave delivers significant savings opportunities through greater efficiency, task flexibility, improved safety and lower total costs.

#### It's time to ride the Wave<sup>®</sup>.



Choose your preferred battery solution. The decision between lead-acid and lithiumion batteries depends very much on your specific application, working shifts and break times, as well as your electrical and facility infrastructure. With the wide range of V-Force® batteries and chargers, you will find the right technology solution for your operation.



See the WAV 60 Series



### Diverse applications

The Wave is ideal for many applications from small parts picking to facilities maintenance.

It enables productive, safe work in busy, confined spaces where workers must cover short and long distances. It is also proven in environments where small loads are handled in receiving, shipping and put-away, such as retail and manufacturing applications.

The Wave is an intuitive solution for almost any facility that currently uses ladders to access high places. With the Wave, users can avoid or eliminate the use of ladders for faster, safer and easier work practices.





### Productivity

Navigate narrow aisles, access items at height, and quickly cover distance with travel speeds of up to 8 km/h. Safety The Wave's four-point system enhances workplace wellbeing by reducing the risk of injury and accidents associated with everyday tasks such as lifting, climbing and carrying.



#### Flexibility

Take advantage of the Wave's compact size, exceptional manoeuvrability and proven performance in countless applications.



#### Savings

Reduce labour, decrease effort, save time, lower costs and diminish exposure to injury by creating a safer and more efficient work environment.

# **Productivity** Achieved

The Wave's AC motors and controls allow operators to accomplish more with maximum travel speeds of 8 km/h. Operators can also work with confidence at up to nearly 5 metres, which dramatically increases productivity.

The Wave also eliminates climbing and reduces heavy, awkward lifting while providing a stable working platform. Plus, there's no need to move cumbersome ladders from place to place.

Work faster and more efficiently with the innovative Crown Work Assist Vehicle. With the Wave, operators can easily move merchandise and materials, reach the required elevation, and complete the task at hand in less time than it may take to simply walk to the picking location.



Manoeuvre with ease With a small footprint and zero turning radius, the Wave can fit in smaller spaces. It easily navigates 80 cm doorways, manoeuvres around corners and traverses tight spaces, enabling you to make the most of your facility by storing more products in less space.

Simultaneous travel and lift

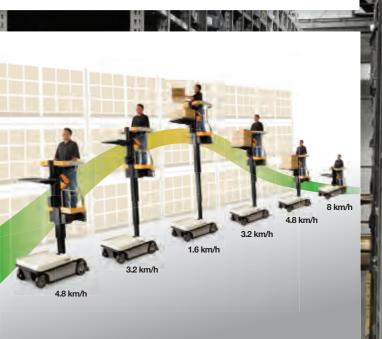
Rail guidance system





e-GEN® Braking gives you an edge in performance, service and cost of ownership by eliminating traditional friction brakes, providing:

- Variable motor braking, specific to conditions
- Reduced maintenance (fewer parts and wear points)
- Automatic parking brake engagement



With productivity in mind, Crown designed the Wave to travel and lift simultaneously, so operators can move around a facility while raising or lowering to the appropriate heights in one smooth, seamless operation. The Wave reaches a maximum speed of 8 km/h and adjusts speed based on lift height

This optional infrastructure offers even more timeand cost-saving advantages by reducing required aisle width to 90 cm, and allowing operators to travel and reach various heights in one fluid motion. The Wave, combined with the rail guidance system, helps you increase your warehouse capacity.



## **Enhanced operator control and safety**

#### Crown's four-point safety system

is designed to ensure safety for Wave operators and bystanders

#### 1. Interlocking gates

must be closed to raise or lower the platform. Full-speed travel requires gates to be open to allow an unobstructed exit in the event of an emergency. Travel speed is reduced when the gates are closed.

## Safety with every turn

The Wave is a versatile and user-friendly vehicle, enabling operators to work with confidence. Its built-in system of protection and control starts the moment the operator turns the key switch. A security check verifies all safety devices are functioning properly before the vehicle will start up. It then coordinates the functional display, manages lift/lower operations, and controls travel speeds, steering and braking so the operator can focus on the task at hand.

**Crown's Access 1 2 3° Comprehensive System Control** monitors and controls vehicle functions and provides the operator with feedback for safe, reliable performance.

- Intuitive display
- Event codes
- Prompting operator messages
- Fully adjustable performance levels
- Advanced diagnostics

2. Safety sensors below the platform disable raise, lower and

travel if someone or some thing applies pressure to the motor cover located below the platform.

#### 3. Hand sensors

ensure the operator has both hands on the controls for normal travel and lift functions. If necessary, either hand can be removed to balance or steady a load.

#### 4. Dual foot pedals

include sensors to ensure the operator has both feet properly positioned on the platform. The Wave automatically stops travel and lift/lower functions if either foot is removed.

# Application flexibility

The Wave's compact footprint and simple operation make it an excellent solution for work environments that require lifting or moving loads in confined spaces. Crown's V-Force lead-acid and lithium-ion battery options allow for a tailored energy solution to meet your application requirements. When recharging is needed, the Wave simply plugs into any standard power outlet.

Retail



Manufacturing



**Distribution/Small Parts picking** 



Food and beverage



Transportation



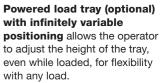




The Wave's load tray supports up to 90 kg, while the load deck holds up to 115 kg, going far beyond what workers can safely lift and move using ladders.

#### **Maximum utility**







Five-position manual load tray (standard) accommodates loads of varying shapes and sizes. The tray can also be folded up and stowed away when higher loads are needed on the load deck.



## **Savings** add Up

The Wave cuts labour in half for many routine activities by enabling a single employee to accomplish tasks that typically require two. Beyond tremendous efficiency gains, enhanced safety can lower costs associated with lost time and product damage. Consider this formula below for your operation:

#### Labour is cut in half

A two-person task becomes a one-person task, and one-person tasks can be accomplished twice as fast.

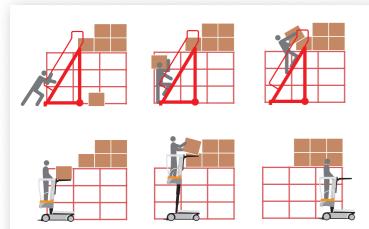
#### Lost time expense is reduced

Increased safety also reduces overtime or replacement labour to compensate for worker injury associated with falls from a ladder.

#### Product damage is reduced

Safer product handling and lift assistance reduces risk of products falling from ladders.

#### **Operational cost savings**



Using a traditional ladder can be cumbersome, time-consuming and dangerous for employees because it requires them to handle heavy loads at height.

Using the Crown Wave increases labour and time savings, while allowing operators to safely and efficiently move product or materials.

According to the European Statistics on Accidents at Work database (ESAW), approximately 145,000 injuries leading to four or more days of absence were due to falls from height.

"Carrying even light and manageable loads up or down ladders should be avoided wherever possible."

Source: Eurostat - Causes and circumstances of accidents at work in the EU, 2009



### The Wave saves in so many ways

It only took a few hours of use by employees at a True Value Hardware Cooperative for co-owner Rob Kuenning to say, "We have to have one." Today, multiple Wave units are used in two company locations, the largest of which is a 3,700 m<sup>2</sup> retail space.

Prior to using the Wave, employees there depended solely on ladders to handle stock above floor level. Even after 15 years of use, they are finding new ways to use the Wave and are still seeing noticeable improvements in efficiency and safety.

"Our Waves are used constantly, multiple times a day by many of our employees," Rob said. "They can handle large loads once instead of moving up and down a ladder multiple times, and they enjoy maximum visibility and ease of use."

They also haven't experienced any injuries from transporting and retrieving items at height since the first Wave was deployed.

"Safety is at the forefront of our operation and the Wave helps us maintain this focus," Rob explained. "There is nothing we cannot do with the Wave in our facility. I would definitely recommend it to others. I cannot imagine doing business without it."

#### More uptime for your investment

Crown's integrated approach combines truck feedback and diagnostics, Crown-made parts and dedicated service teams to give you more uptime and a low total cost of ownership.











Access 1 2 3 technology enables advanced diagnos through an intuitive display iagnostics system, used across all Crown trucks, increases technician proficiency, resulting in significant savings in service time and costs.

InfoLink® is a wireless operator and fleet management solution that puts the power of accurate up-to-date, business metrics right at your fingertips.

Change the way you work with the Wave.



Crown's InfoPoint™ on-truck component maps provide service engineers with vital information to quickly, accurately and easily resolve issues without wiring diagrams or schematics



Crown's Integrity Parts and Service System<sup>™</sup> solution ensures long-term truck performance by matching trained service engineers with Crown-made parts for long-lasting performance





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