

WasteExpo 2018 Marks a Half-Century Disproving Waste

The main takeaway from The WasteExpo 2018 Show and Conference to be held in Las Vegas April 23-26 is that nothing in this world has to be wasted—especially opportunities to eliminate waste.

Over the course of the 50 years in which the WasteExpo Show and Conference has been offered, the professionals representing organizations that keep organic and inorganic materials from ending up in bodies of water and landfills have proven that everything can have multiple chances at being useful. And as the readers of *Hydraulics and Pneumatics* have proven for the past 70 years, their skills and technologies contribute mightily to making resource recovery and recycling easier.

Their solutions enable the crushing, tearing, shaking, and pounding forces that help separate elements from compounds for the benefit of science, manufacturing, and the environment. See our list of exhibitors for a sample of the manufacturers who make best use of fluid power in their solutions.

This year's WasteExpo program—to be held in Las Vegas April 23-26, in partnership with the National Waste & Recycling Association (NWRA) and Dr. Stu Buckner—is designed to help the organizations responsible for recovering and recycling resources be smarter, safer, and more efficient about it. That's done by helping them research new technologies, target manufacturing partners, find new suppliers/vendors, and learn new and better ways to do what they do best.

More than 12,000 industry experts will network with each other at this event to learn and share best practices and return home with invaluable new resources. Aside from the show's 600-plus exhibitors, the conference program's educators from around the world will offer the newest and best approaches to:



- Anaerobic digestion
- Automated collections
- Composting
- Curbside recycling
- Data collection and security
- Fleet maintenance best practices
- Food loss, waste, and recovery
- Healthcare waste management
- Organics equipment and technologies
- Roadside inspections
- Robotics
- Safety technologies
- Zero-waste strategies and best practices

WasteExpo 2018 will begin the evening of April 23rd with a 50th Anniversary Welcome Reception sponsored by New Way, at Marquee Las Vegas in the Cosmopolitan hotel. Marquee Nightclub and Dayclub is said to be Las Vegas' most sought-after nightlife and day party destination.

On the morning of the 24th, Jim Fish, CEO of Waste Management, will outline the significant challenges and opportunities faced in the waste and recovery industries, and how their responses to those challenges will determine the future of resource sustainability.

Then, on the 24th and 25th, Mack Trucks will offer "Ride & Drive" opportunities for CDL-carrying attendees to test drive one of their refuse trucks. *H&P* readers will be particularly interested in how the truck's design was inspired by customers' demands for superior maneuverability, power, visibility, and ergonomics.

For more information about the Waste Expo 2018, or to register, go to WasteExpo.com. You'll also be welcomed to share your memories, photos, videos, and stories of your company's connections to the waste and recycling industry over the last 50 years. They can be your first memory of #WasteExpo, a story about your products or services back in the day, or a quick update about how you became associated with the industry.

Fluid Power Exhibitors

at Waste Expo	Booth
Alkon Corp.	237
Applied Industrial Technologies	3002
Baldwin Filters	4106
Castrol.....	2471
Chevron Lubricants	3301
Columbia Industrial Products Inc....	4377
Custom Hoists Inc.	876
DEL Hydraulics	1022
Elektrim Motors	1718
HAWE Hydraulics	944
Heavy Motions Inc.	3977
The Hose Company.....	3981
Hub Industrial Supply.....	338
<i>Hydraulics & Pneumatics</i>	TBD

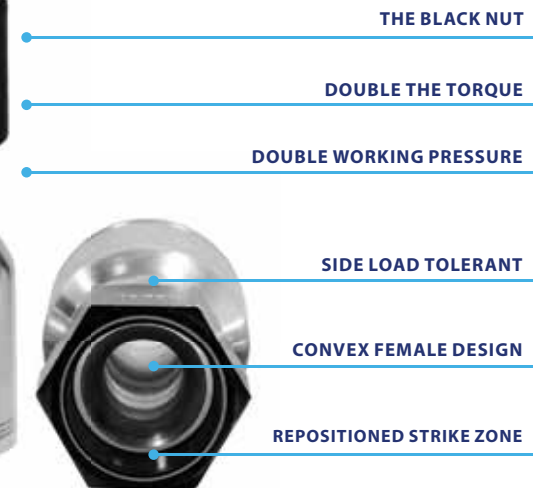
Hydro Leduc NA Inc.	4108
Hydrolec Inc.	1362
IMI Norgren.....	838
Liebherr Construction Equipment..	3577
Mailhot Industries.....	441
Muncie Power Products.....	2437
OEM Controls Inc.	934
Parker Hannifin Corp.	2557

Permco Inc.	1345
Petro-Canada Lubricants Inc.	3001
Rotac Tippers by Micromatic LLC ...	935
Schroeder Industries LLC	1614
TransAxle.....	874
Vogelsang Fastener Solutions	3926
Walvoil Fluid Power	1450
West Craft Mfg.	936



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Lifter Uses Hydraulic Rotary Actuator for High Maneuverability and Flexibility

Parker Helac's waste-receptacle dumpers have reduced worker compensation claims and improved route times, among other benefits.

A Midwest-based original equipment manufacturer (OEM) designs and builds waste-receptacle dumpers that attach to garbage trucks, recycling vehicles, and other waste-handling equipment. The lifter is attached to the front or side of a vehicle or onto the dumpster of a front-load refuse truck. After an operator positions a receptacle cart onto the dumper, the latter then lifts and tilts the cart, spilling its contents into the vehicle. When the dumping cycle is complete, the lifter returns to a stowed position.



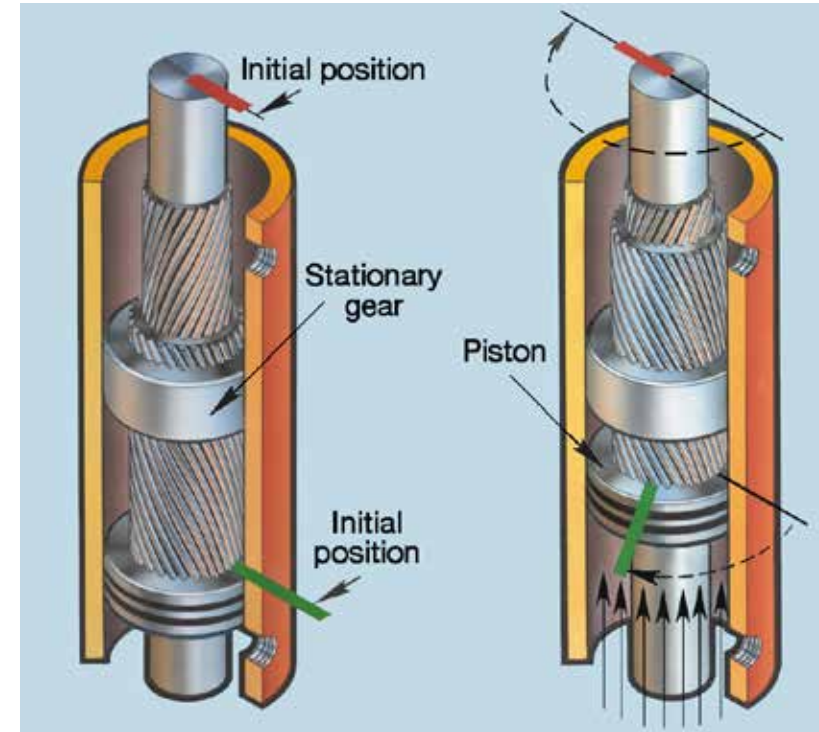
The helical rotary actuator (painted black) provides 220 deg. of rotation, completely emptying carts.

Advantages of using carts and cart lifters include reduced worker compensation claims, faster route times, and larger routes, since workers don't tire as quickly. The carts also improve street sanitation, reducing health risks by helping prevent animals from disturbing waste left outside overnight.

The heart of the lifter mechanism is a helical rotary actuator—a TorqBear Series Model T20-14E, manufactured by Parker Helac, Enumclaw, Wash. The 220 deg. of rotation produces a sharp and aggressive dumping angle that completely empties the contents of the

cart. The actuator's mounting feet with through drilled holes facilitate attachment to the lifter mounting plate: The feet are not flush with the actuator housing but, instead, are situated on the sides of the housing. This contributes to the compact nature of the mechanism by

enabling the actuator to be positioned partially below the surface of the mounting plate. The through-shaft has extensions at both ends with straight splines that facilitate the easy attachment of the lifting arms—adapters with matching splines to which the arms are welded.



These sectional drawings show operation of a helical-gear rotary actuator.

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A typical refuse truck's hydraulic system operates at pressures to about 3,000 psi, with flow rates varying widely from 20 to 80 gpm. The rotary lifter uses less than 2 gpm, so a way to siphon off the correct flow was required. The lifters tap into the truck's existing pressure line via a flow-diverter valve.



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High flow type ejector

ACTUATORS VS. CYLINDERS

The use of the actuator in its lifter designs allows the OEM to build a high-performance machine not possible with a cylinder. Actuator-equipped machines dump higher and deeper than cylinder machines. At the same time, they can be designed thinner, making access to the hopper by the operator as easy as possible.

In the illustration, the cutaway on left shows initial positions of piston (green line) and output shaft (red line). Pressurized fluid entering the lower port pushes the piston up. The stationary ring gear causes the piston to simultaneously rotate clockwise. In the cutaway at right, teeth on the output shaft mesh with those in the ID of the piston, causing the shaft to rotate clockwise relative to the piston. (The output shaft rotates at twice the speed of the piston.) Pressurizing the upper port returns the piston and shaft to their initial positions.


The long, slender configuration of the helical shaft actuators provides a clean, compact design that enables the lifter mechanism to be bolt mounted flush to the vehicle for an exceptionally low profile. The rotary actuator has no exposed moving parts; lifters using hydraulic cylinders can provide no more than 180 deg. of rotation and incorporate a more complicated system consisting of bearings, brackets, pivot points, and rods—all exposed to damage. Further, the inherent characteristics of Helac's helical rotary actuators offer several advantages over other rotational devices and actuator designs:

- Very high torque output in an ultra-compact configuration;
- Equal torque output from both ends of the shaft;
- Shaft support provided by integral large diameter tapered roller bearings;
- Smooth, positive positioning without drift due to the elimination of internal bypass and external leakage (and nearly zero backlash);
- No exposed, external moving parts;
- A helical gear design that provides exceptional resilience to shock loading and abuse;
- Constant speed and consistent torque through the entire angle of rotation; and
- Much cleaner and more streamlined installation.

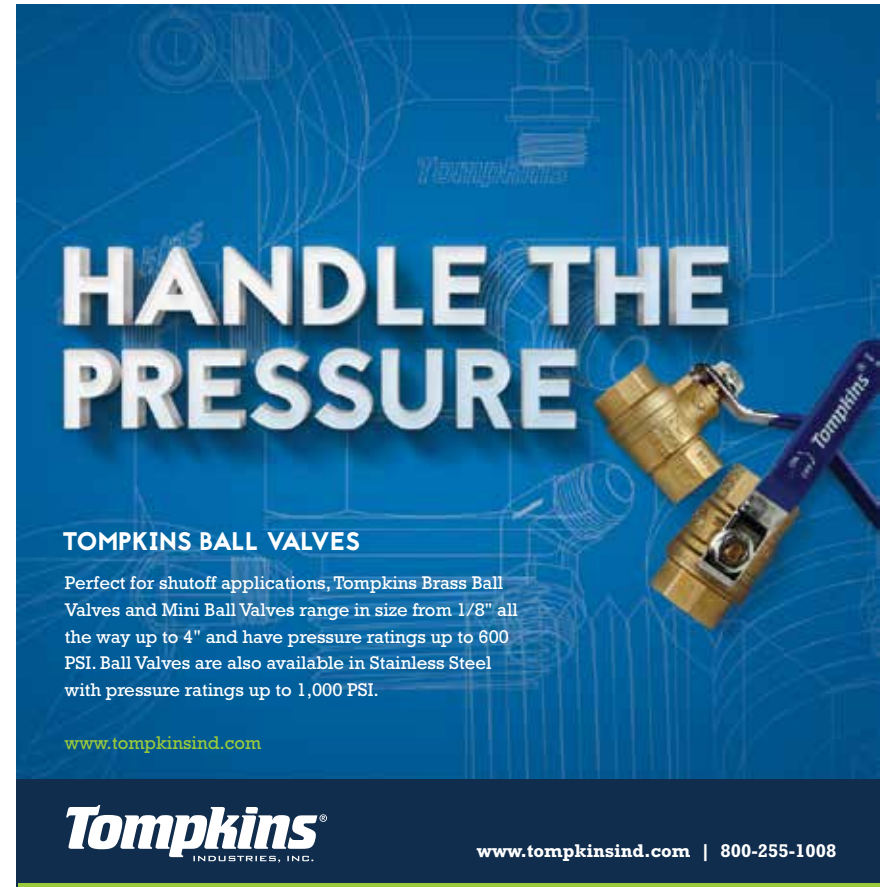
Taking everything into account, the helical actuators have enabled the OEM to design a compact lifter with power sufficient to lift heavily loaded carts.

LOW FLOW

A typical refuse truck's hydraulic system operates at pressures to about 3,000 psi, with flow rates varying widely from 20 to 80 gpm. The rotary lifter uses less than 2 gpm, so a way to siphon off the correct flow was required. The lifters tap into the truck's existing pressure line via a flow-diverter valve. This custom-made valve sends an adjustable amount of flow to the lifters and allows the remaining flow to pass through to the packer (compactor) blade.

The system has been designed to minimize backpressure, which in turn, minimizes heat and extends oil and system life. Competing OEMs use a fitting with an orifice, but those systems do not properly regulate flow (which fails to regulate lifter speed) and creates excess heat. The Helac actuator has been designed for low flow requirements, thus helping minimize oil take-off from the packer and virtually eliminating any packer slow-down. 

FOR MORE information on Parker Helac rotary actuators, call (360) 825-1601, or visit www.helac.com.



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