

# The Hover-Davis Direct Die feeder™

DDf™

the world's first

and only

totally portable

high-speed

bare die feeder

HOVER-DAVIS  
Direct Die Feeder™

HOVER-DAVIS®

# Saves You Money By...

...**ELIMINATING** all taping or other packaging **COSTS**.



Save space to maximize the value of your placement equipment.

...providing a **BROAD RANGE OF DIE DELIVERY** options to maximize placement throughput at **HIGH SPEEDS**.



...allowing **MULTIPLE FEEDERS** to be installed on one placement machine (a DDf is only 80mm wide).



...offering true **PORTABILITY** so DDf's can be relocated as demands change (one DDf weighs 60 lbs/27.2 kg).

...utilizing on board **MACHINE VISION** to qualify ink dots, bumps, corners or other features so only **KGD's** are delivered to placement.

...being flexible enough to mount onto many **DIFFERENT PLACEMENT PLATFORMS** to keep up with your changing equipment needs.

...feeding a wide variety of flip-chips or circuit-up devices with **SIMPLE CHANGEOVERS**.



## CONTROL PANEL

Easy to use, readily accessible, operator interface allows the user to perform the many functions available on the DDf.

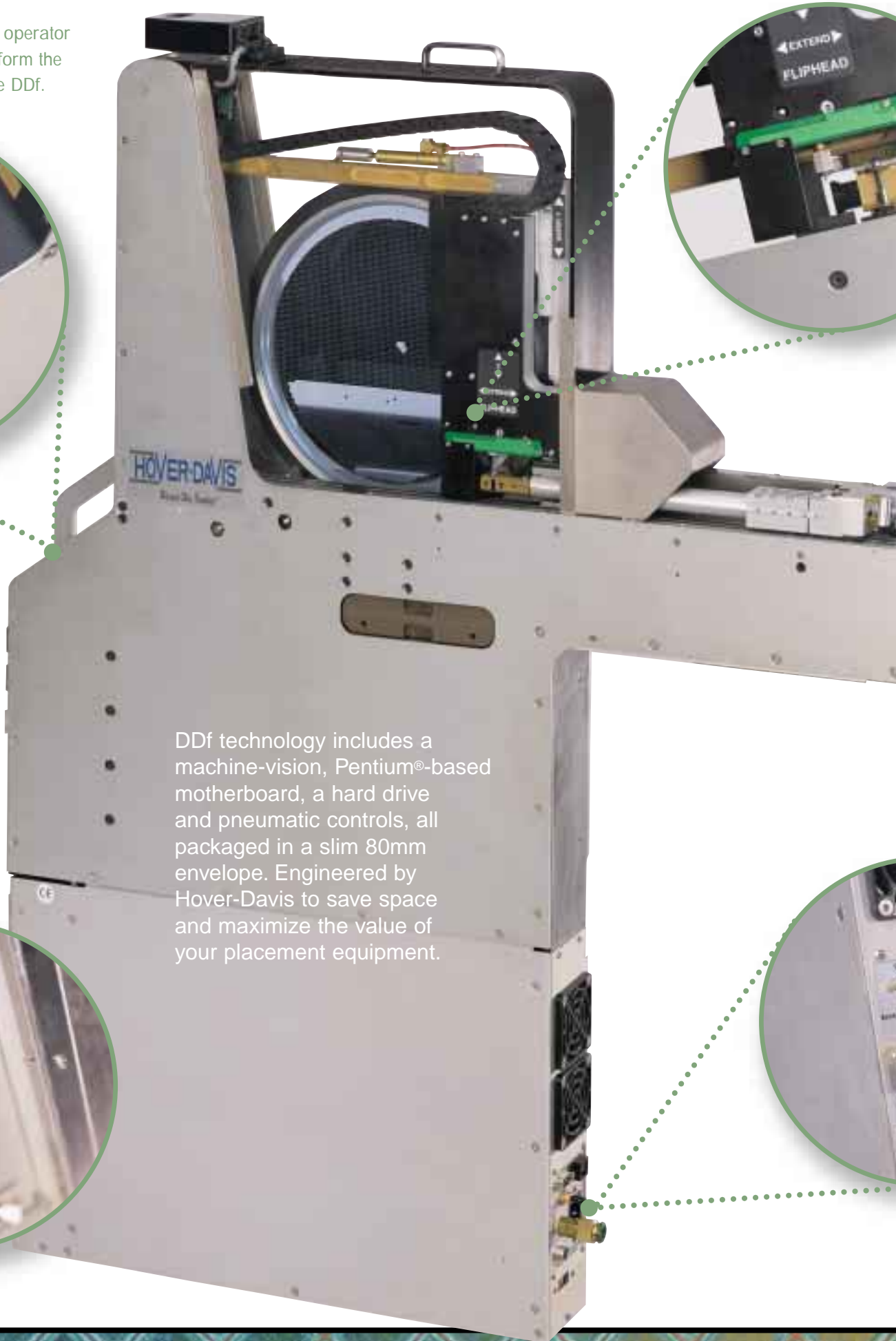


## ACCESSORY INTERFACING


A Windows-based, computer-controlled machine, the DDf quickly connects to keyboard, monitor and mouse for programming and troubleshooting.



DDf technology includes a machine-vision, Pentium®-based motherboard, a hard drive and pneumatic controls, all packaged in a slim 80mm envelope. Engineered by Hover-Davis to save space and maximize the value of your placement equipment.

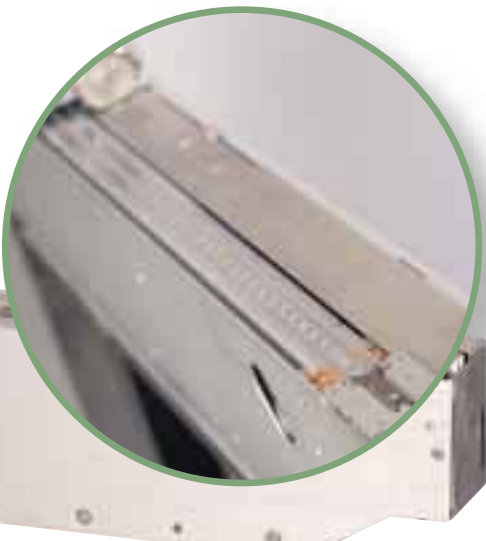


## DIE EXTRACTION




A cleverly designed extract and pick mechanism works together to remove die from a vertically oriented wafer. Application tooling is easily replaced in seconds. Both circuit-up and circuit-down die can be handled by this flexible concept.

## TRANSPORT



A conveyor-style transport system takes die from wafer extraction to the pick-point using many different schemes. Maximum throughput, speed and accuracy are ensured by our cutting-edge motion control system.

## UTILITY PANEL



The DDf can be connected to a host via a multitude of schemes including: RS232, Ethernet, as well as factory preset connections as necessary. The DDf can handle both 110V 50/60 Hz and 220V 50/60 Hz connections.

## Don't Pay To Package Your Die

The introduction of active package-less SMD's at the wafer level is now a reality. Eliminate the cost associated with packaging trays and embossed tapes with a new form of component packaging: NONE!

Recurring cumulative costs associated with high-volume packaging of components is staggering. The Hover-Davis DDf makes this cost a thing of the past!

## Introducing... Our NEW DDf Technology

The new DDf technology from Hover-Davis crosses the threshold of a new era in electronics manufacturing. The DDf enables you to introduce wafer-level devices to your placement equipment and eliminate the costs associated with packaging. Imagine being able to deliver thousands of die per hour to your placement machine, while only 3 – 4 feeder slots are consumed.

Bare silicon devices are an incredible component of RFID's, Smartcards, Bluetooth®, Opto-Electronics, Automotive Hybrids, Security and a host of other markets on verge of exploding into the electronics manufacturing sector. The combination of modern-day, high-volume, flexible SMT placement systems and Hover-Davis DDf machines can produce a profitable bare die or mixed-content assembly solution.

Let the Hover-Davis DDf help you streamline your process and save you money at the same time.

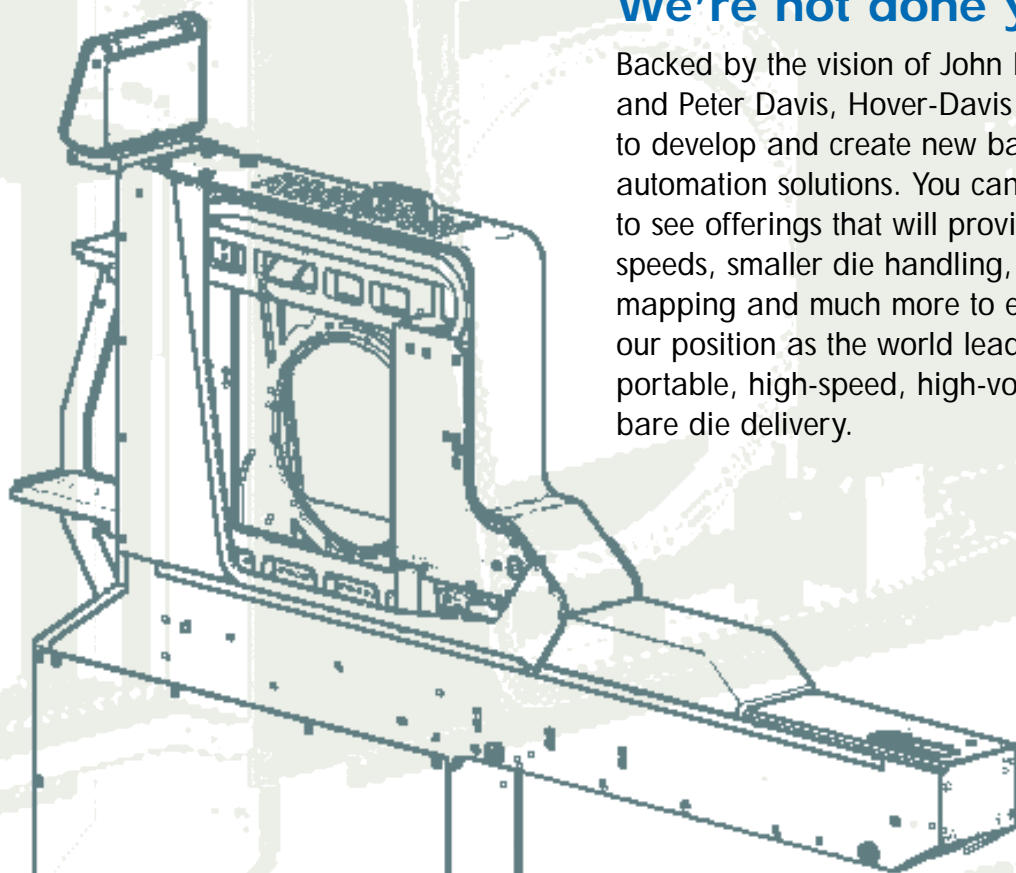


## Amazingly slim...

At only 80mm wide, it's the only machine like it in the world! Why waste valuable placement machine real estate with large, cumbersome die sorters?

## We're not done yet...

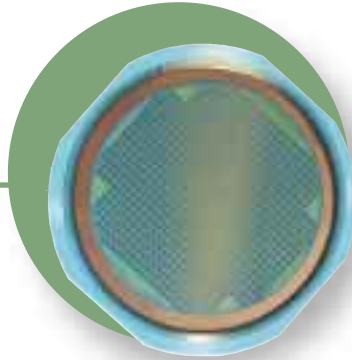
Backed by the vision of John Hover and Peter Davis, Hover-Davis continues to develop and create new bare die automation solutions. You can expect to see offerings that will provide higher speeds, smaller die handling, wafer mapping and much more to ensure our position as the world leader in portable, high-speed, high-volume bare die delivery.



# The Hover-Davis

## Direct Die feeder...

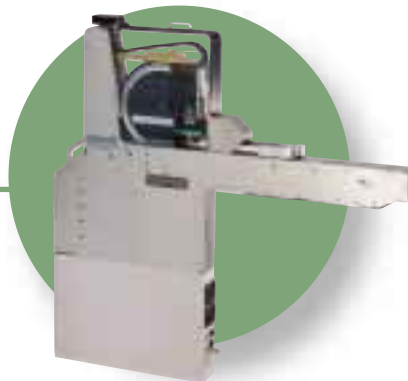
...ELIMINATES all  
taping or other  
packaging COSTS



...allows INSTALLATION  
OF MULTIPLE FEEDERS



...offers TRUE PORTABILITY



Save  
space to  
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## HOVER-DAVIS

100 Paragon Drive, Rochester, NY 14624

phone 585-352-9590 • fax 585-352-4870

sales@hoverdavis.com • www.hoverdavis.com

# save time & money

The Hover-Davis DDf will streamline your supply chain and reduce costs while conserving valuable feeder space.

For more information and a FREE savings analysis, give us a call at: [1-585-352-9590](tel:1-585-352-9590).

Or, visit our website at [www.hoverdavis.com](http://www.hoverdavis.com) to get instant cost-saving calculations.

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“The drive to reduce size, while increasing clock speeds, will be the prime mover that brings bumped die and wafer level packages into the SMT environment. The DDf is, by design, a flexible, portable delivery solution that adapts well to this emerging need, while bypassing expensive delivery packaging steps.”

— Peter Davis, Chief Technical Officer

## HOVER-DAVIS

Phone: (585) 352-9590 • Fax: (585) 352-4870

E-mail: [sales@hoverdavis.com](mailto:sales@hoverdavis.com)

100 Paragon Drive • Rochester, NY 14624 • [www.hoverdavis.com](http://www.hoverdavis.com)

*World Leader In Component Delivery Systems*

# accessories

wafer expansion station

film frame adapters

expansion rings,  
grip ring adapters

DDf service &  
calibration tools

Placement machine tables  
that allow for tape  
feeder installation...