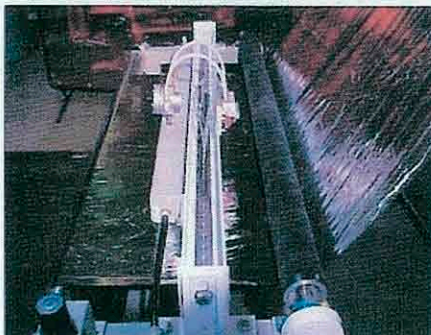
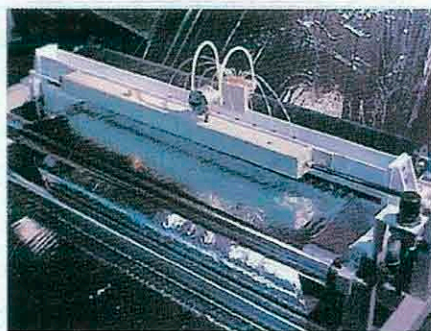


Web hole-punching system delivers precision

Essex Plastics finds a solution in a deceptively simple system.

By Managing Editor Melissa Larson



Hole-punching systems on six blown-film lines provide precise hole patterns for monolayer and coex bag at variable web speeds.

It sounds like the easiest converting operation conceivable—punching holes in a moving web of plastic. But for Essex Plastics Midwest LLC, a Flexsol Co., the punching operation needed to create air-release holes in their monolayer and coextruded bags, sheets, and liners it makes for the automotive, furniture and poultry industries was proving to be a huge headache.

Air-release holes of varying patterns and sizes are necessary to ease the application of protective plastic bags over the products they package, as well as to comply with rules governing the protection of children from being suffocated once the bags reach the consumer's home. But properly controlling the pattern and repeat of the holes on a web moving at speeds of up to 600 fpm had proven difficult.

Seven hole-punching systems manufactured by QMI, Inc., Pryor, Okla., now reside on Essex' six new Battenfeld/Gloucester blown film lines located at its Nashville, Tenn. plant. Five are in fixed positions, and two more are mounted on portable frames to be taken where needed. Hole sizes range from 1/8 in. to 7/16 in. dia. on a web of linear low-density polyethylene metallocene (LLDPE), plus 3-layer coextruded barrier films. Punching vent

holes with 1.5-in. spacing and 2-in. repeats is now done effortlessly using QMI's control system.

Moving target

Key to the precision of each system is an optical encoder, tied into the extruder, that measures the length of the web, plus an onboard computer that automatically calculates the web's line speed and adjusts the punch spacing to match. With minimal training, according to the machine builder, operators can program the machine to punch any pattern desired, whether it be holes at specific distances from bag seams, or repeated holes in a specific pattern. These patterns are unaffected by variations in line speed. The PC-based controller can also store up to 54 hole patterns for quick recall.

Each system also includes a vacuum chip collector, rated for continuous operation, that deposits chips into a container, making cleanup a breeze.

"We're pleased with the QMI system," says Dave Clarke, general manager at the Nashville facility. "It offers us a greater amount of flexibility when it comes to punching vent holes." Another QMI system has recently been installed at the Essex plant in Ft. Lauderdale, Fla.

More information:

QMI, Inc., 918/825-5777, fax: 918/ 825-7773, qmi@viagrafix.net

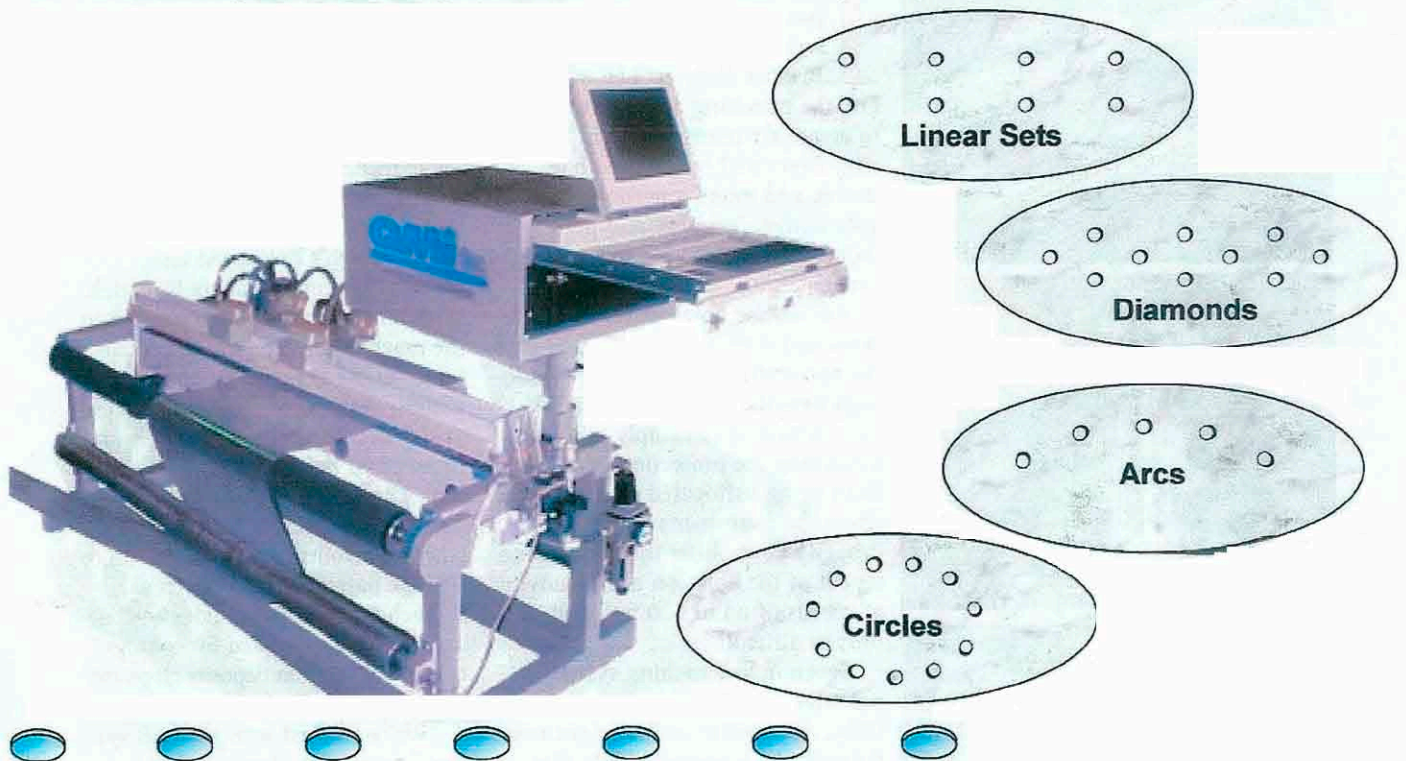
The *Viper C.C.* Computer Controlled Moving Web Hole-Punching Unit

State of the art technology and heavy duty construction are combined to provide the most operational flexibility and completely reliable performance.

An onboard computer system enables the QMI *Viper C.C.* to automatically calculate the line speed of the web and adjusts the punch spacing to match. This means good product is made the second the machine is turned on.

Operators can program the *Viper C.C.* to punch any pattern desired with ease. Whether it is holes at a specific distance from a bag seam or repeated holes in a custom pattern, such as diamonds, diagonals, arcs or circles the simple programming makes it effortless. Once a hole pattern is programmed, the PC-based control can store it for instant recall. This significantly reduces change-over and setup time. Each machine is shipped with a 100% duty cyclonic vacuum system. The industrial cyclone type vacuum is rated for continuous operation. The area around the *Viper C.C.* remains cleaner and safer because the chips are deposited in a container for easy storage or removal..

The *Viper C.C.* unit is made entirely at the QMI, Inc. facility in the Mid America Industrial Park in Pryor, OK. Each machine is meticulously built and tested by QMI technicians to ensure delivery of a quality machine.



EXCELLENT START-UP ASSISTANCE & TECHNICAL SUPPORT

After installation, each machine will be commissioned on your site by a QMI technician. Your staff will receive 8 hours of on-site training in the machine's operation.

QMI, Inc. has technical representatives who can be reached 24 hours a day, 7 days a week.

The **Viper Single Punch** Moving web Hole-Punching Unit

Amazing performance with incredible simplicity.

Using the same housing assembly and die unit as our **Viper P.L.C.** and our **Viper C.C.** moving web hole-punching machines, our **Viper Single Punch** unit will vent a web at amazing speeds.

The **Viper Single Punch** unit is made entirely at the QMI, Inc. facility in the Mid America Industrial Park in Pryor, OK. Each unit is meticulously built and tested by QMI technicians to ensure delivery of a quality machine.

Punches can be controlled with a timer, pulses from the cam on the bag machine or with a QMI P.L.C. controller for greater versatility

A mounting slot is included on the back surface so the Viper Single Punch Unit can be easily mounted to existing framework on most bag machines

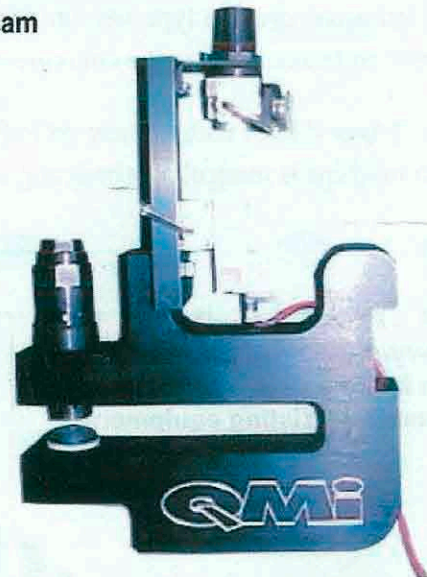
Three standard lengths of 4 inches, 8 inches and 12 inches are in stock for immediate shipment

Punches and dies in standard sizes of 1/8, 1/4, 3/8 and 7/16 in clean cut or butterflied are in stock for same day shipment. Also housing bodies, housing caps, actuators, return springs, and die sleeves are in stock for same day shipment.

EXCELLENT START-UP ASSISTANCE & TECHNICAL SUPPORT

After installation of the **Viper Single Punch**, commissioning is available, ask your sales representative or call our corporate office for fee schedule.

QMI, Inc. has technical representatives who can be reached 24 hours a day, 7 days a week.



QMI

SPECIALTY MANUFACTURING

The *Viper* P.L.C. Controlled Moving Web Hole-Punching Unit

No more trying to adjust punch rate to match web speed. The QMI, Inc. *Viper* P.L.C. machine will punch the proper spacing no matter how fast or slow the web moves

The key to the *Viper* P.L.C. is our onboard programable logic control system, which automatically calculates the line speed and adjusts the punch spacing to match. This means good product is made the second the machine is turned on.

As an economical alternative to more complex hole patterns, operators can program the *Viper* P.L.C. to punch any repeat spacing desired with ease. The simple programming can be done in about a minute, which significantly reduces change-over time and start-up scrap. Each machine is shipped with a 100% duty cyclonic vacuum system. The industrial cyclone type vacuum is rated for continuous operation. The area around the *Viper* P.L.C. remains cleaner and safer because the chips are deposited in a container for easy storage or removal.

The *Viper* P.L.C. unit is made entirely at the QMI, Inc. facility in the Mid America Industrial Park in Pryor, OK. Each machine is meticulously built and tested by QMI technicians to ensure delivery of a quality machine.

The *Viper* P.L.C. is built on a heavy-duty movable frame or can be designed to mount in-line on new or existing equipment.

The programmable logic control system allows simple and quick setup



Each machine has four idler rolls to accept virtually any web path

QMI stocks standard size punches, dies, and housing bodies for QMI machines as well as some made by other manufacturers for same day shipment

EXCELLENT START-UP ASSISTANCE & TECHNICAL SUPPORT

After installation, each machine will be commissioned on your site by a QMI technician. Your staff will receive 8 hours of on-site training in the machine's operation.

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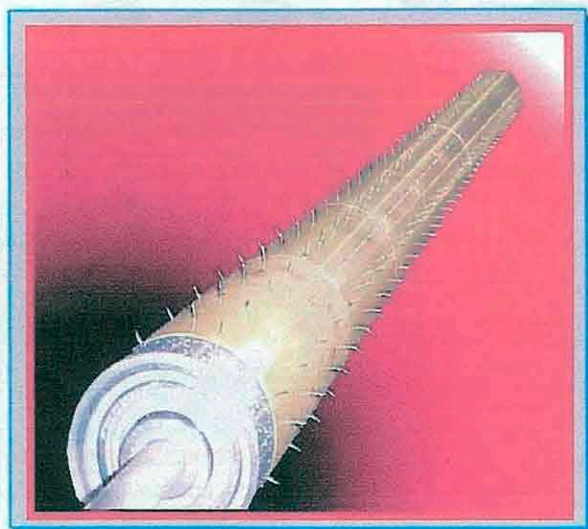
SPECIALTY MANUFACTURING

Our precision designed **Viper Micro-Perf** roll system is the most economical method for in-line micro-perfing of a web.

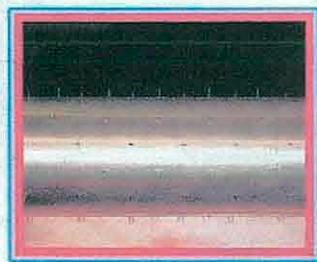
The **Viper Micro-Perf** roll is designed and manufactured to exacting specifications. This system allows for quick and easy changeover to accommodate a variety of patterns. Many times instead of replacing the entire roll when your pattern changes, our roll system allows you to replace the sleeve with the new pattern. Should the pins become damaged, you only need to replace the damaged section.

The **Viper Micro-Perf** roll is made entirely at the QMI, Inc. facility in the Mid America Industrial Park in Pryor, OK. Each roll is meticulously built. Dimensions are tested by QMI technicians to ensure delivery of a quality product.

Each perforator is precisely engineered and installed, accounting for the arc angle of the sleeve to achieve the pattern and spacing specified.

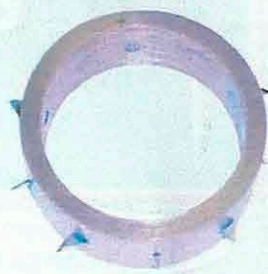


Available in either live shaft or dead shaft designs



The **Viper Micro-Perf** sleeve segment allows simple, less costly changing of patterns and repairs

The **Viper Micro-Perf** sleeve segment can be configured with pins, blades, or a combination



Additional idler rolls can be included with the **Viper Micro-Perf** roller for web wrap or web path purposes.

WARRANTY & TECHNICAL SUPPORT

The **Viper Micro-Perf** roller is warranted for material defects and workmanship.

QMI, Inc. has technical representatives who can be reached 24 hours a day, 7 days a week.

QMI[®], INC.

QMI, Inc. **Punches, Dies, Housings etc.**

A quality machine is only as good as the parts which support it.

Our moving web hole-punching machines, the **Viper P.L.C.**, the **Viper C.C.** and the **Viper Single Punch** unit are designed for performance and production. Our exclusive punches, dies and housing assemblies help make this possible. All tooling manufactured by QMI, Inc., is produced with our special process which increases the hardness and impact resistance of the material, therefore increasing the life of the part.

We also manufacture replacement parts which are compatible with other manufacturer's machines. These compatible replacement parts are produced with the same process that enables our own machines to out perform the competition, and when the need arises, our sharpening service will extend the life-cycle of your parts.

Our standard and compatible parts are made entirely at the QMI, Inc. facility in the MidAmerica Industrial Park in Pryor, OK. and are all competitively priced.



Punches and dies in standard sizes of 1/8, 1/4, 3/8 and 7/16 in clean cut or butterflied, plus housing bodies, housing caps, actuators, return springs and die sleeves are in stock for same day shipment. In addition to our standard sizes, QMI, Inc. can provide pricing on any size tooling you may require.

EXCELLENT START-UP ASSISTANCE & TECHNICAL SUPPORT

After installation, each **Viper P.L.C.** and **Viper C.C.** machine is commissioned on your site by a QMI technician. Your staff will receive 8 hours of on-site training in the machine's operation.

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QMI
SPECIALTY MANUFACTURING

The **Viper P.L.C.** Controlled Moving Web Hole-Punching Unit

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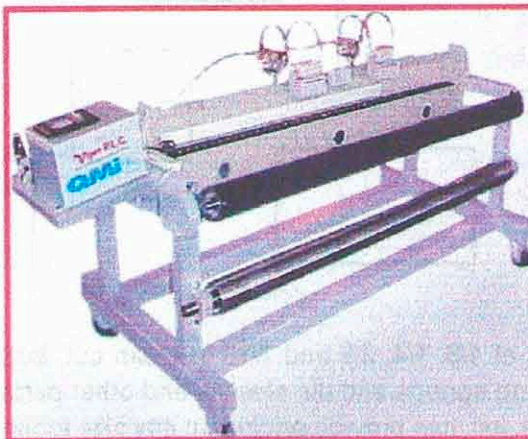
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As an economical alternative to more complex hole patterns, operators can program the **Viper P.L.C.** to punch any repeat spacing desired with ease. The simple programming can be done in about a minute and "On The Fly", which significantly reduces change-over time and start-up scrap. Each machine is shipped with a 100% duty cyclonic vacuum system. The industrial cyclone type vacuum is rated for continuous operation. The area around the **Viper P.L.C.** remains cleaner and safer because the chips are deposited in a container for easy storage or removal.

The **Viper P.L.C.** unit is made entirely at the QMI, Inc. facility in the Mid America Industrial Park in Pryor, OK. Each machine is meticulously built and tested by QMI technicians to ensure delivery of a quality machine.

The **Viper P.L.C.** is built on a heavy-duty movable frame or can be designed to mount in-line on new or existing equipment.

The programmable logic control system allows simple and quick setup and operation



Each machine includes four idler rolls to accept virtually any web path or the unit can be mounted into an existing framework

QMI stocks standard size punches, dies, and housing bodies for QMI machines as well as some made by other manufacturers for same day shipment

Patent Pending

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QMI[®], INC.

QMI, Inc. **Punches, Dies, Housings & Parts**

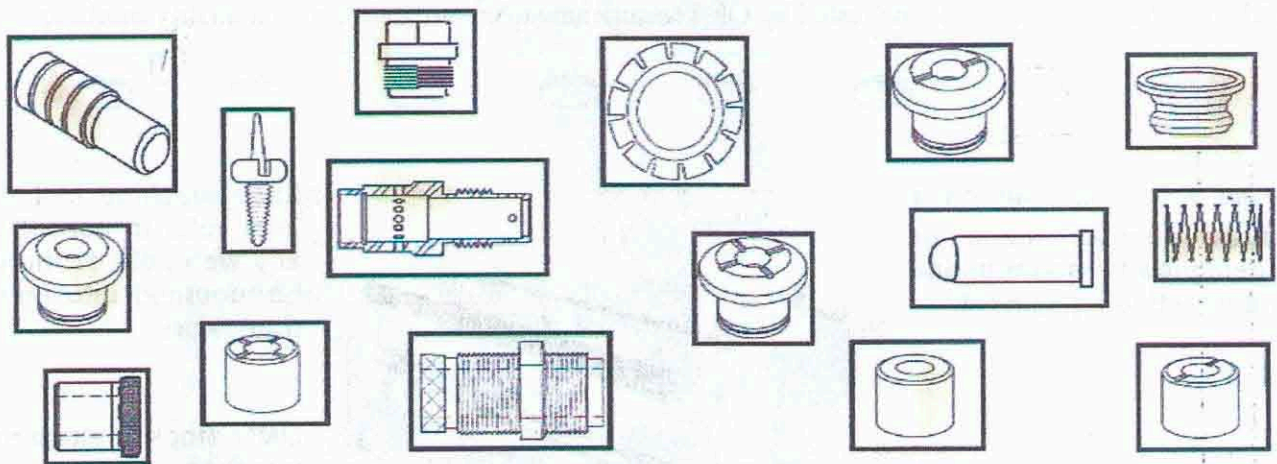


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Patent Pending

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