

HERNON[®]

Formulating Solutions

**THE LEADER IN
AMMUNITION SEALANT
TECHNOLOGY**



ABOUT US

Hernon Manufacturing Inc.® specializes in the production and distribution of high-performance adhesives, sealants and precision application equipment. Hernon was established in New York in 1978 and has been headquartered in Sanford, Florida since 1990.

Hernon's product portfolio includes over 5000 unique formulas for anaerobic adhesives, cyanoacrylates, epoxies, acrylics, UV curing adhesives/sealants and many more. We also provide custom adhesive formulations and application solutions to meet specific customer requirements. With a focus on innovation, quality and customer satisfaction, Hernon has established a global presence and serves customers in over 66 countries. Our products are known for their durability, strength and ability to withstand even the most challenging environmental conditions.

Over the past four decades, Hernon has become a globally recognized leader in ammunition sealing technology. Our unique sealant formulas and application process seals and protects all calibers of ammunition from contamination due to water or chemical exposure. All of Hernon's ammunition sealants are single component, contain zero solvents, are UV/anaerobic curable and seal both primers and casemouths. We also produce a range of precision dispensing/curing equipment that significantly reduce waste and production time.

HERNON MANUFACTURING, INC.®

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Hernon Headquarters: Sanford, FL

HOW WE STAND APART

For almost half a century, Heron has developed high performance sealants for all sizes and types of ammunition - ranging from small caliber, rifle rounds, blanks, frangible ammunition, shot shells and grenades to large mortar rounds - making us a world-renowned manufacturer of ammunition sealant technology.

Heron has revolutionized the ammunition sealing process moving from the old, messy, time consuming batch process using asphalt to a much cleaner and more efficient continuous process where high performance sealants are cured in a matter of seconds via powerful UV lights leaving the rounds ready for immediate use or packaging. In fact, our sealants are already specified on government drawings and approved for use since 1994.

In addition to many standard ammunition sealant formulas and types of application equipment, Heron can also deliver customized sealants and dispensing/application solutions to meet any unique production need. From the largest ammunition manufacturers in the world to hobbyists and home loaders, rounds sealed by Heron have extreme water, environmental, solvent and heat resistance to ensure peace of mind and reliability.

» **ISO-9001 REGISTERED**

» **PROUDLY MADE IN THE USA**



CHARACTERISTICS OF HERNON'S AMMUNITION SEALANT TECHNOLOGY

Hernon Ammunition Sealants

- » **Advanced Formulation Technology:** One part, low viscosity solution with a dual curing mechanism (UV and anaerobic), enhancing application flexibility and efficiency.
- » **Wide Range of Application:** Suitable for sealing primers and casemouaths across a diverse range of calibers.
- » **Robust Resistance:** Superior resistance to solvents, environmental factors and heat. Maintains integrity under various conditions.
- » **Rapid UV Curing:** Cures under UV light within 3-7 seconds enabling rounds to be ready for immediate handling or packaging.
- » **Customizable Options:** Available in an array of colors and strengths to meet specific requirements for bullet pull strengths or aesthetic preferences.
- » **Versatile Use:** Ideal for a range of ammunition types including blank rounds, shot shells, grenade fuses, large caliber components and more.
- » **Military Grade Standards:** Rounds sealed with Hernon ammunition sealants surpass U.S. MIL-SPEC and NATO standards for waterproofing.
- » **Advanced Sealing Technology:** Offers a more effective sealing solution compared to traditional asphalt sealing methods.

Hernon Application Equipment

- » **Integrated R&D Synergy:** Hernon's in-house chemical and equipment R&D teams collaborate closely, ensuring customers have access to both the most suitable sealant formulations and the most efficient and effective application systems.
- » **Precision Dispensing and Curing:** Designed to precisely seal and UV cure sealant on ammunition primers and/or casemouaths, ensuring consistent quality and accuracy.
- » **Automatic Application Systems:** Transition from a labor-intensive, batch sealing process to a streamlined, clean and continuous sealing operation with our automatic application systems.
- » **Advanced Equipment Options:** Utilize Hernon's Sureshot® 3510 microjet dispensing valves and Ultracure® UV curing lights for optimal performance.
- » **Comprehensive System Solutions:** Offers additional options like 100% vision inspection, automatic bowl feeders, elevators for bulk loading and more, enhancing the sealing process.
- » **Flexible Sealing Capabilities:** Hernon are experts in designing and building systems for a wide range of production speeds from 20ppm standard equipment to fully custom systems sealing up to 2000ppm.
- » **Customization Expertise:** Hernon specializes in crafting custom-designed application equipment and components for scenarios where standard solutions fall short in efficiency or effectiveness.
- » **Dedicated Technical Support:** Provides in-house and remote technical support for equipment setup and troubleshooting, ensuring seamless operation and maintenance.

HERNON'S AMMUNITION SEALANTS

Common Criteria For Choosing The Optimal Grade Of Ammunition Sealant Include:

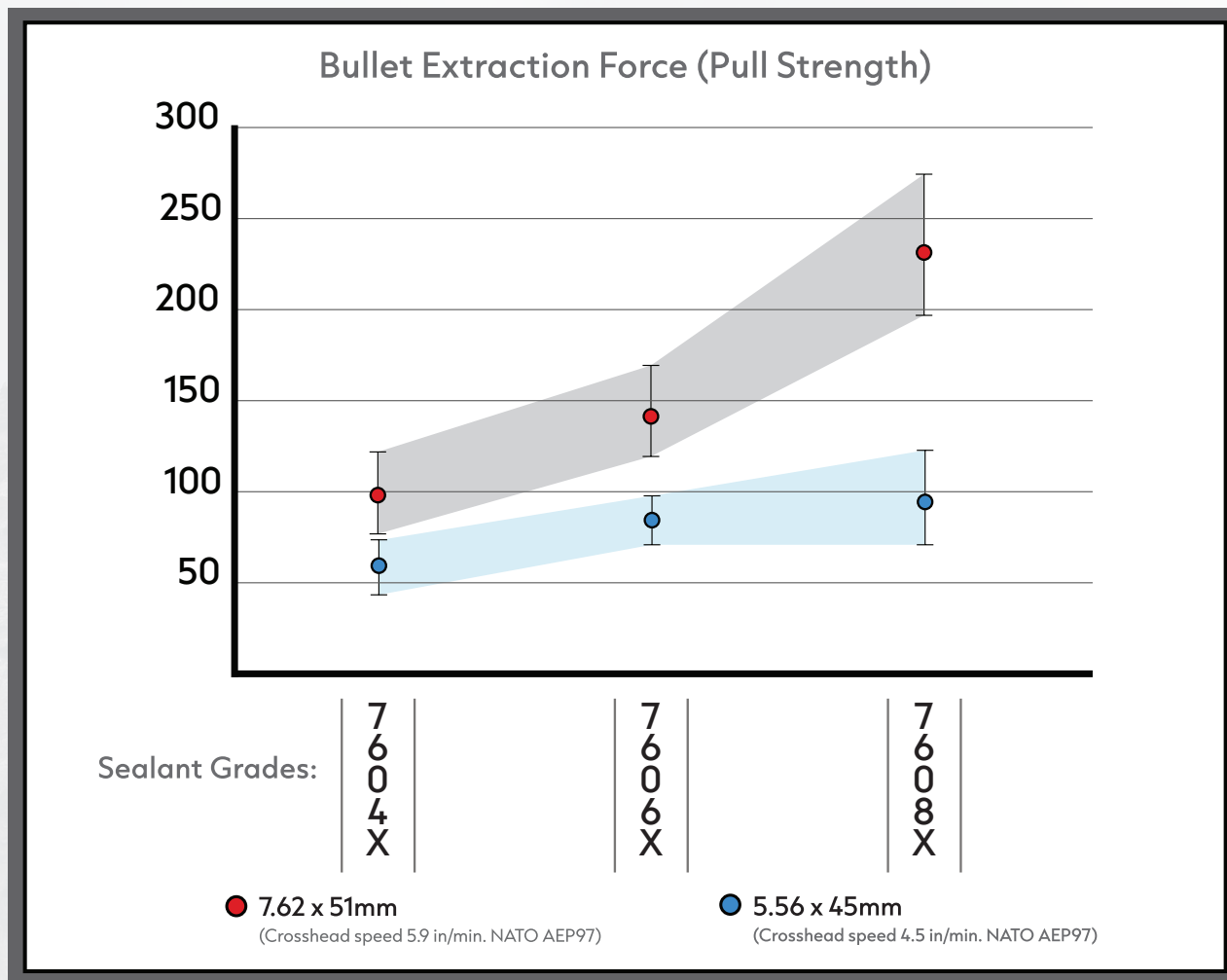
- » Choosing the correct sealant characteristics can help achieve ideal bullet pull strength and standard deviation between rounds
- » The "cleanliness" of rounds at the time of sealing is significant. Rounds with contaminants (ie: lubricants, grease, etc.) will have lower surface energy. Rounds with lower surface energy tend to require sealants with lower surface free energy to achieve full coverage. (See chart below.)
- » Lower viscosity sealants have better wicking and penetrating characteristics while higher viscosities offer higher strengths and hardness after cured
- » Smaller caliber rounds tend to have tighter gaps and experience better sealing results with lower viscosity sealants which penetrate better. However, larger caliber rounds provide more sealant options to choose from depending on the manufacturer's desired results.

Contact Hernon® to discuss which grade would be the best solution for your specific requirements!

GRADE	COLOR	VISCOSITY @25°C, cP	STRENGTH	Surface Tension mN/m
76040	LT YELLOW	5-20	LOW	28.6
76041	RED			
76060	LT YELLOW		MEDIUM	
76061	RED			
76081	CLEAR	8-15	HIGH	32.8
76082	GREEN			
76083	BLUE			
76084	RED			



HERNON'S AMMUNITION SEALANT DATA



Cartridge	7.62mm (Crosshead speed 5.9in/min, AEP97)			5.56mm (Crosshead speed 4.5in/min AEP97)		
	7604X	7606X	7608X	7604X	7606X	7608X
External Ammunition Sealants:	7604X	7606X	7608X	7604X	7606X	7608X
Mean (lbf)	99	143	235	55	82	98
Standard Deviation	23	22	39	12	13	31
Coefficient of variation	23	16	16	22	16	32

EAS Properties	7604X	7606X	7608X
Specific Gravity	0.98	0.92	1.04
Viscosity @ 25°C, cP	5 -20	5-20	8-15
Cure time by Ultracure® 9* (seconds)	3	3	3
Surface Tension (mN/m)	28.6	29.0	32.8
Hardness, Shore A, ASTM D2240	30	35	57

Samples were cured for 3 seconds under UV light @ 365nm and post cured at room temperature for 24 hours before testing. All samples were tested for leakage and no leaks were observed.

* Ultracure® 9 (Heron UV LED curing lights @ 365nm); Sample is located ¼" distance from source

NOTE: The data presented in these graphs was derived from extensive internal testing, is furnished for information purposes only and is believed to be reliable. It is important to note that pullout force results, while comprehensive, are subject to variability based on the specific components used as well as other variables that are beyond our control. While these results offer valuable insights, they should be considered indicative and may vary in different practical scenarios. We cannot assume responsibility for the results obtained by others over whose methods we have no control.

SPECIALTY AMMUNITION SEALANTS

Blank Ammunition Sealants

- » Medium or high viscosity, UV curable compounds for coating and sealing blank ammunition tips.
- » Cures upon exposure to UV light in 4-10 seconds.
- » Achieves excellent results with paper witness testing
- » **New Formula 53170HV is dual curing** (UV and anaerobic)

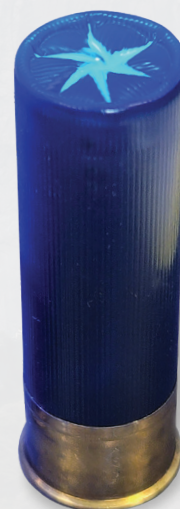
GRADE	VISCOSITY	COLOR	CURING METHOD
48641	MEDIUM	PURPLE	UV
48641HV	HIGH	PURPLE	UV
53162	MEDIUM	LT. YELLOW	UV
53162HV	HIGH	LT. YELLOW	UV
53170HV <i>(New!)</i>	HIGH	LT. YELLOW	DUAL



Scan for a video of the blank ammo sealing process



Sealed blank round with UV light fluorescence



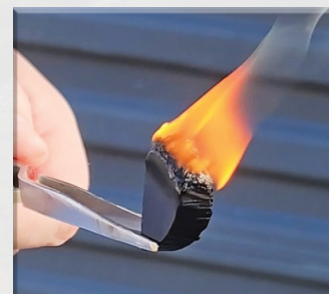
Shotshell crimp sealant shown under UV

Shotshell Sealants

- » **Crimp sealants:** Sealants for buffer retention, water resistance and waterproofing. Sealant options include UV curable, acrylic/water-based or solvent-based.

Miscellaneous Sealants

- » **Bullet Proof 650:** Water-based asphalt bitumen; room temperature cure, stays pliable. *Specified by the US Army for small caliber ammunition.*
- » **Grenade Fuse Sealant 40995:** One part, low viscosity, UV and anaerobic curing. Cures to a high performance thermoset plastic suitable for temperatures of -40° to 400°F (-40° to 204°C).
- » **Tuffbond® FE1 (Flammable Epoxy):** A modified epoxy designed to seal materials from moisture that can then completely burn off if/when desired. FE1 has a fast room temperature cure, is high viscosity, experiences low shrinkage and has an easy mixing of resin and hardener.



Tuffbond® FE1
(Flammable Epoxy)

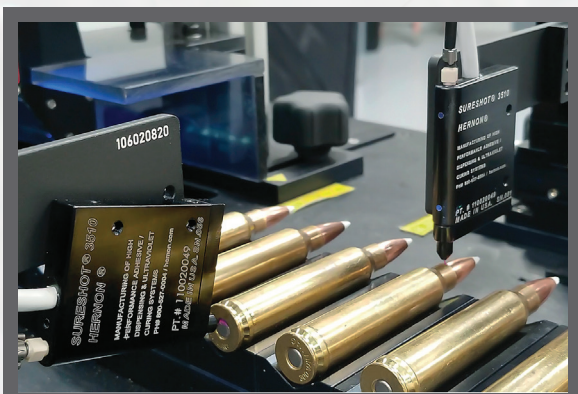
STAGES OF THE AMMUNITION SEALING PROCESS



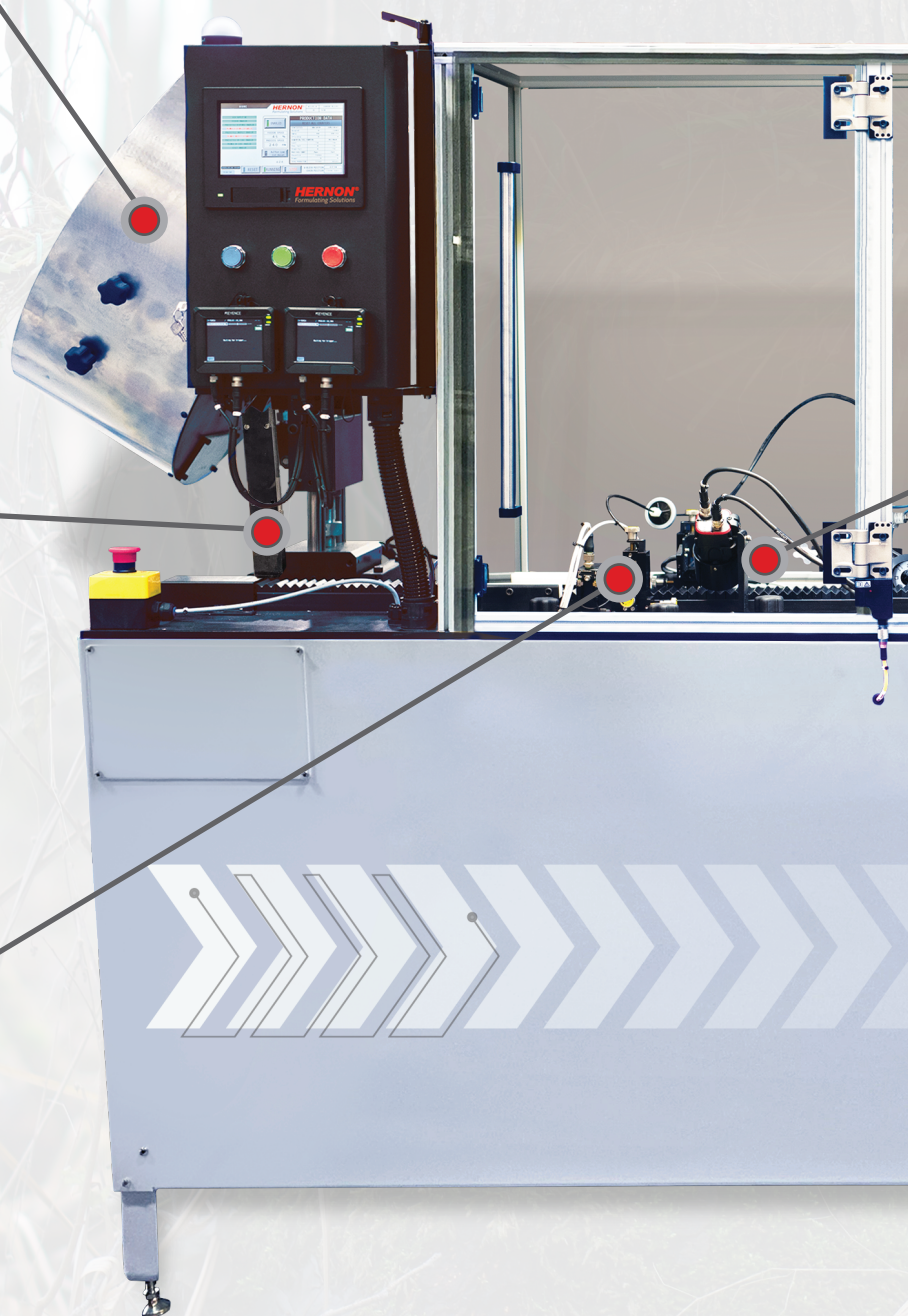
1. Rounds are typically loaded in bulk to a bowl feeder/collator which properly orients the rounds.



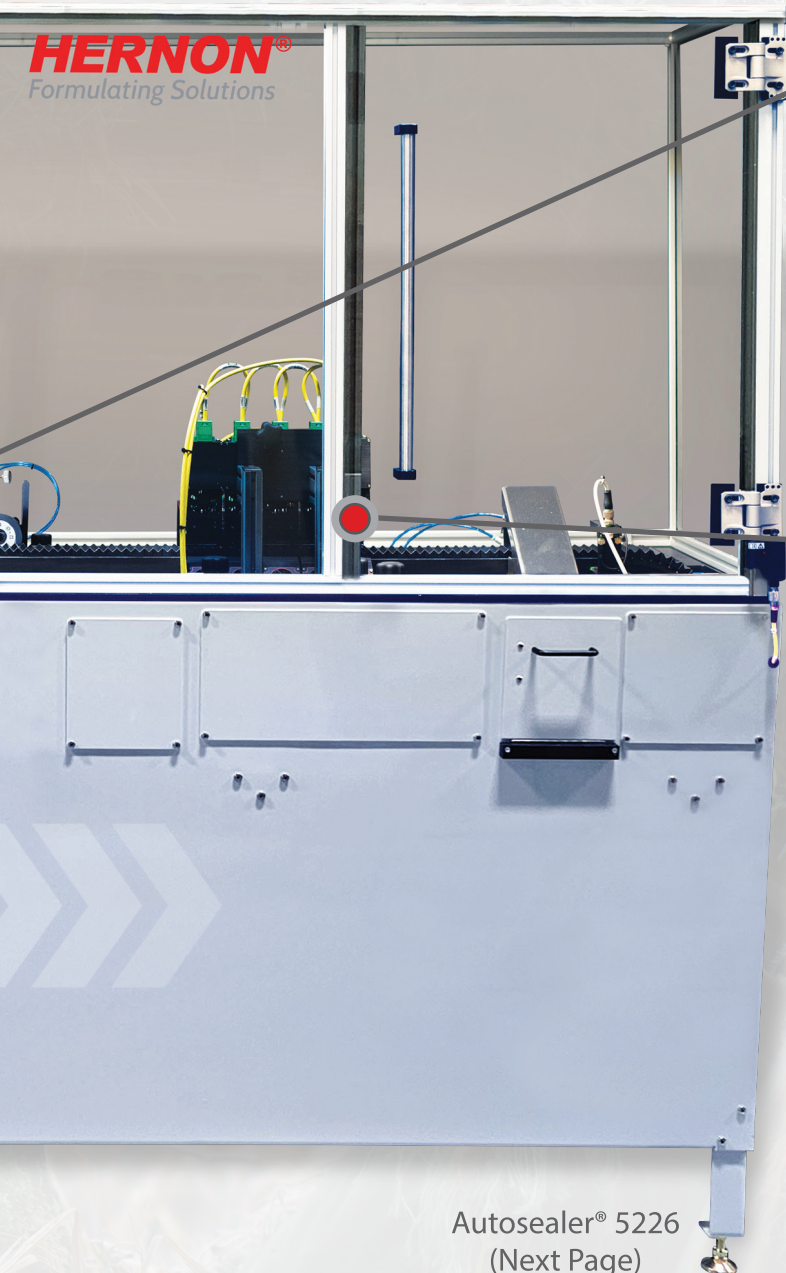
2. Zig zag chute loads rounds on to an inline conveyor.



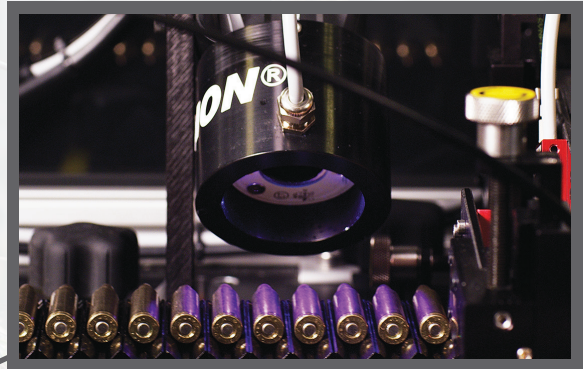
3. Sureshot® 3510 valves dispense sealant on primers & casemouaths. Sealant wicks & penetrates crevaces for complete sealing.



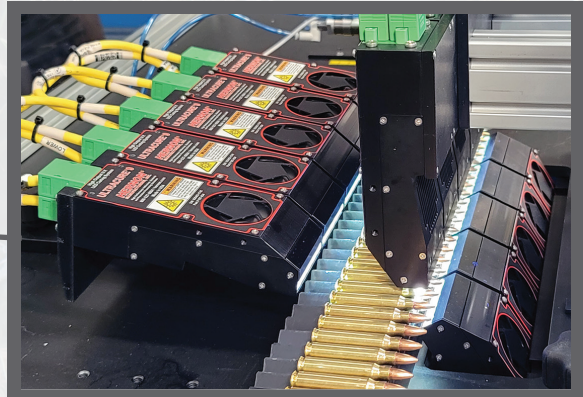
Although there are numerous optional features to choose from, Hernon's ammunition sealing process typically follows these steps from start to finish.



Autosealer® 5226
(Next Page)



4. Vision inspection detects any sealant application imperfections and automatically ejects bad rounds.



5. The rounds then pass through an array of Ultracure® UV LED lights which cure the sealant in a matter of seconds.

The fully sealed rounds are now ready for immediate use or packaging.

AUTOSEALER® 5200 SERIES

The **Autosealer® 5200** Series are cost-effective, compact, inline conveyor ammunition sealing systems. All 5200 models seal primers and casemouths on calibers ranging from .380 ACP to .50 caliber BMG rifle cartridges as well as blank ammunition. **Users can easily switch between calibers in minutes.**

Each model utilizes HERNON **Sureshot® 3510** precision dispense jetting valves and **Ultracure® 9** UV LED technology to instantly cure exposed sealants. All models feature user friendly, color touchscreen controls and many customizable options including automated bowl feeders/collators, vision inspection and more.

- » Seals calibers from .380ACP to .50 Caliber and blanks
- » Air cooled curing

Multiple base models are available depending on the desired production speeds:

- » Autosealer® 5201: 60ppm
- » Autosealer® 5216: 120ppm
- » Autosealer® 5226: 240ppm (caliber dependent)
- » Autosealer® 5251: 60ppm (50 BMG)

5201 Dimensions	24" x 72" x 68" (609.6 x 1828.8 x 1727.2mm)
5216, 5226 & 5251 Dimensions	24" x 84" x 68" (609.6 x 2133.6 x 1727.2mm)
Electrical	200-240 vac 50/60hz / 1 Phase
Air	70-100psi
Filtration	30 micron



Scan for a video of the Autosealer® 5216



Autosealer® 5226

AUTOSEALER® 5550

The **Autosealer® 5550** is a massive, bowl fed ammunition sealing system capable of sealing up to 240ppm. The 5550 can seal rounds ranging in size from 9mm to .50 cal. The 5550 comes with many customizable options to meet the needs of any high volume ammunition manufacturer.

Features:

- » **Sureshot® 3510** precision dispensing valves
- » **Ultracure® 8** water cooled UV LED curing lamps
- » **R125** reservoirs with standard regulator
- » Easily switch between calibers in minutes
- » Designed for IP65
- » Dedicated HMI for vision inspection
- » Auto-purge functionality
- » Heavy duty welded frame

Dimensions	86" x 87" x 74" (2184.4 x 2209.8 x 1879.6mm)
Throughput	Up to 240ppm (Caliber dependent)
Electrical	480 vac 50/60hz / 3 phase
Air	70-100psi
Filtration	30 micron



Inside View Of The Autosealer® 5550
Primer Vision Inspection

AUTOSEALER® 5220

The **Autosealer® 5220** is a **cost-effective**, compact and portable benchtop ammunition sealing system. Just like the larger 5200 series, the 5220 also seals both primers and casemouaths on rounds ranging from 380ACP to .50 caliber BMG and no tooling change is required when switching between different calibers.

The 5220 is ideal for smaller production environments, qualifying runs (first article) or testing labs as the maximum throughput is 20ppm. The entire dispensing system can be easily cleaned and flushed.

Features:

- » **Sureshot® 3510** precision dispensing valves
- » **Ultracure® 6** and **9** UV LED curing lamps
- » **R100** reservoir with standard regulator



Scan for a video of the
Autosealer® 5220

Dimensions	35.7" x 25.9" x 25.2" (906.8 x 657.9 x 50.8mm)
Weight	117 lbs
Filtration	30 micron
Throughput	20ppm maximum
Air	30psi minimum
Electrical	300VA, 50/60hz, 120-240 auto ranging



DISPENSING VALVES & UV CURING LIGHTS

While Heron® offers a complete line of Sureshot® precision dispensing valves and powerful Ultracure® UV LED curing lights/systems for countless applications, our ammunition sealing applications utilize the **Sureshot® 3510** and **Ultracure® 9** almost exclusively.

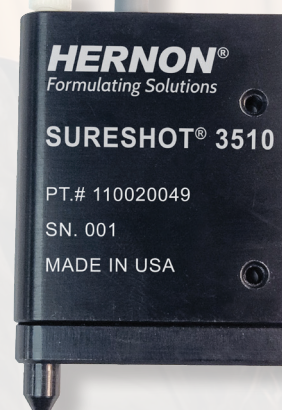
Visit Heron.com for more information regarding other Sureshot® or Ultracure® components.

Sureshot® 3510

Features:

- » Precision, semi-automatic & non-contact dispensing of low viscosity fluids/sealants
- » Extremely durable & reliable in high-volume, 24/7 production environments
- » User friendly design: easy to clean, repair or replace clogged/damaged tips

Dimensions	1.41" x 1.8" x 0.25" (35.7 x 45.7 x 6.4mm)
Orifice	0.01 (included); Other orifice sizes avail.
Fluid pressure	Up to 500psi
Cycle rate	>500/minute

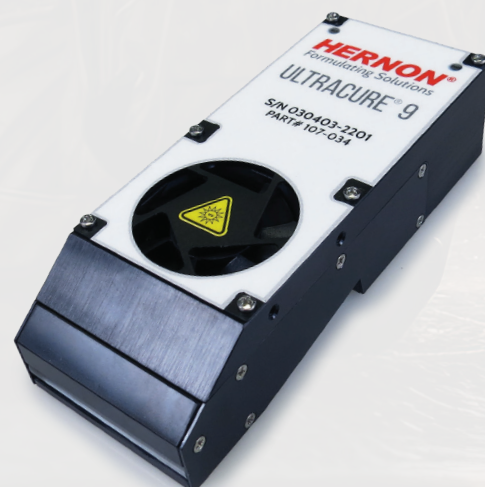


Ultracure® 9

Features:

- » Focus working lens
- » 17,000+ hours of working life
- » Low power input consumption / high intensity UV LED output
- » Requires no replacement lamps or filters
- » Ultracure® 9 technology is "cool to the touch," safe and flexible
- » Each unit is equipped with a driver, cooling fan and integrated circuits

Dimensions	5.2" x 2" x 1.28" (131 x 50.4 x 32mm)
UV Output	2.5/w cm ² max output @365nm
Voltage	24VDC @ 700mA



OPTIONAL FEATURES & COMPONENTS

Bowl Feeder 1000

The Bowl Feeder 1000 automatically and continuously loads and orients large amounts of ammunition. Multiple calibers can be fed using the same base unit and the 1000 is capable of handling calibers ranging from 380ACP to 338 Lapua magnum. (Larger or smaller sizes possible upon request.)

Features:

- » Zig zag sensors automatically detect low and high volume
- » Interior mounted arms help keep rounds correctly oriented
- » Sound reducing lid
- » Adjustable bowl angle
- » Easy tooling changeover for sealing different calibers/cartridges
- » Rear mounted removable powder release cover facilitates easy cleaning



Power Requirement	24V DC
PPM/Output Range	Up to 240ppm (caliber dependent)
Range of parts	Calibers up to 338 Lapua Magnum
Weight	80lbs (36.3kg)
Construction	Solid stainless steel & aluminum

Autovators

Autovators are a series of elevators designed to safely hoist parts from bulk feeders to collator bowl feeders or hoppers. **Autovators** are manufactured with heavy duty welded buckets and come in multiple height options including 5', 8', 10' and custom.

Features:

- » Variable operating speeds up to 240ppm
- » Gently conveys parts to avoid possible damage
- » Ergonomic, user friendly design with minimal footprint
- » Easily integrates into existing manufacturing production lines
- » Automatic receptacle level sensor

Air pressure	60-100psi
Electrical	50/60hz / 100-240V, 500VA
PPM or output range	240ppm (caliber dependent)
Range of parts	Projectiles, cartridges and live rounds from 9mm to 338 Lapua



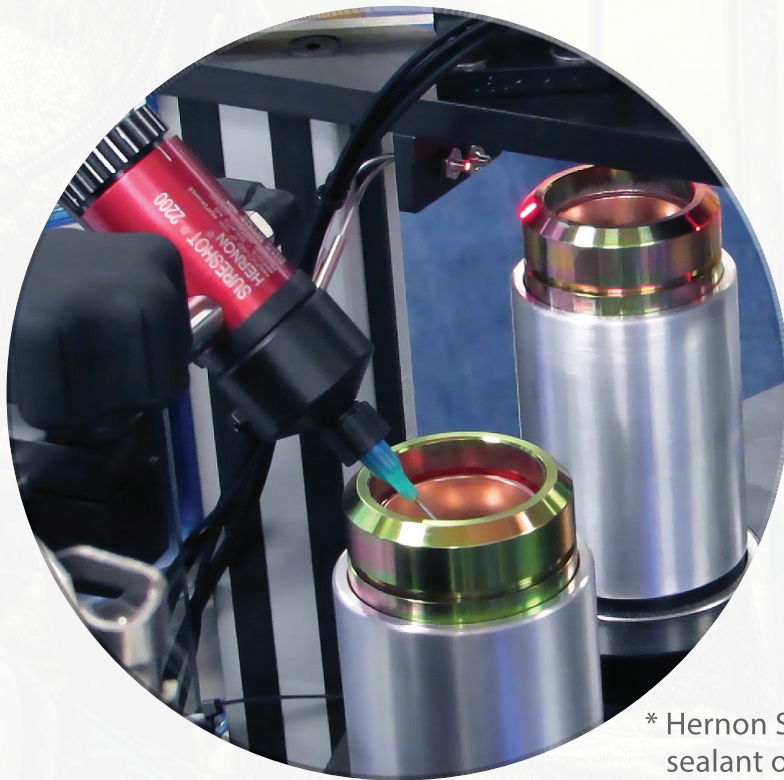
CUSTOM APPLICATION EQUIPMENT

Since 1978 Herson has developed and manufactured countless custom application solutions for our customers. Supported by in-house chemical laboratories *and* engineering teams, Herson is a single source provider who is able to work in tandem with customers to understand and develop not only the exact adhesive or sealant specifications that are needed - but the most effective and efficient application systems to apply them as well.

Numerous industries have benefitted from Herson's proven ability to design and assemble custom adhesive and sealant dispensing, curing and application systems when "standard" or existing systems were not able to deliver the desired results.



* Herson Plate Loaded Ammunition Sealing System



* Herson Sureshot® 2200 dispensing sealant on explosive shaped charges

From simple benchtop dispensing stations to high volume bulk feeding, UV curing and packaging systems - Herson has earned a reputation with small and large companies alike for being able to streamline their unique manufacturing and production processes.

Contact Herson today and let's work together on *your* unique application challenges!

BULLET TIP ID

Introducing Our Revolutionary & Patented Process!

Heron's precision application expertise has now resulted in a new and patented method for the most uniform and efficient bullet tip ID application process available anywhere. The single component coating contains no solvents, cures in seconds upon exposure to UV light and requires very low volume per round which ensures low application costs.

Features:

- » Excellent adhesion and scratch resistant properties
- » Outstanding print quality and uniformity
- » The ease of application and low cost allows commercial ammunition manufacturers to further uniquely brand their rounds
- » UV curable in seconds
- » Greatly improves processing speed
- » Multiple colors available for easy identification



**UNPREDICTABLE
ENVIRONMENT?**

**PREDICTABLE
AMMUNITION**



COUNTRIES WHERE HERNON IS SOLD



Notable Ammunition Customers:



HERNON[®] *Formulating Solutions*

YOUR SINGLE SOURCE PROVIDER OF:

HIGH PERFORMANCE ADHESIVES AND SEALANTS

EPOXIES • THREADLOCKERS • STRUCTURAL ADHESIVES • UV CURABLE ADHESIVES
THREAD SEALANTS • GASKETING COMPOUNDS • SILICONES • POROSITY SEALANTS
UV FOG (FORM-ON-GASKET) • RETAINING COMPOUNDS • CYANOACRYLATES
THERMALLY CONDUCTIVE ADHESIVES • ACCELERATORS, ACTIVATORS & PRIMERS
CUSTOM ADHESIVE & SEALANT FORMULAS

PRECISION APPLICATION EQUIPMENT

SURESHOT[®] DISPENSING VALVES • ULTRABOND[®] UV CURING COMPONENTS
CUSTOM APPLICATION SYSTEMS & SOLUTIONS

TURNKEY SOLUTIONS

