

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. Having entire teams of in-house chemical and mechanical engineers also allows Hernon to work directly with customers to ensure that the ideal adhesives or sealants are being married with the optimal and most efficient application systems.

With a focus on innovation, quality and customer satisfaction, Hernon has established a global presence and serves customers in over 66 countries.

HERNON MANUFACTURING, INC.®

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HOW WE STAND APART

For almost half a century, Hernon 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 innovator of ammunition sealant technology.

Hernon has revolutionized the ammunition sealing process by moving away 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. These newly sealed rounds are then ready for immediate use or packaging.

Hernon's external ammunition sealants have extreme water, environmental, solvent and heat resistance to ensure rounds will function as desired even in less than ideal environments or weather conditions. All of Hernon's ammunition sealants are single component, contain zero solvents, are UV/anaerobic curable and seal both primers and casemouhths. These sealants also come in varying strengths which can be used to alter or fine tune desired bullet pull strengths as well as improve standard deviations.

In addition to many standard and custom ammunition sealant formulas, Hernon also manufactures many types of standard and custom application equipment for use by the largest ammunition manufacturers in the world to hobbyists and home loaders. The Autobonder® series from Hernon range from fully automated, bulk fed machines that can seal and cure up to 240ppm (caliber dependent) to manually fed, desktop models that seal up to 20ppm.

» **ISO-9001 REGISTERED**



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 casemouths 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 casemouths, 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

Choosing The Optimal Grade Of Ammunition Sealant:

- » 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.

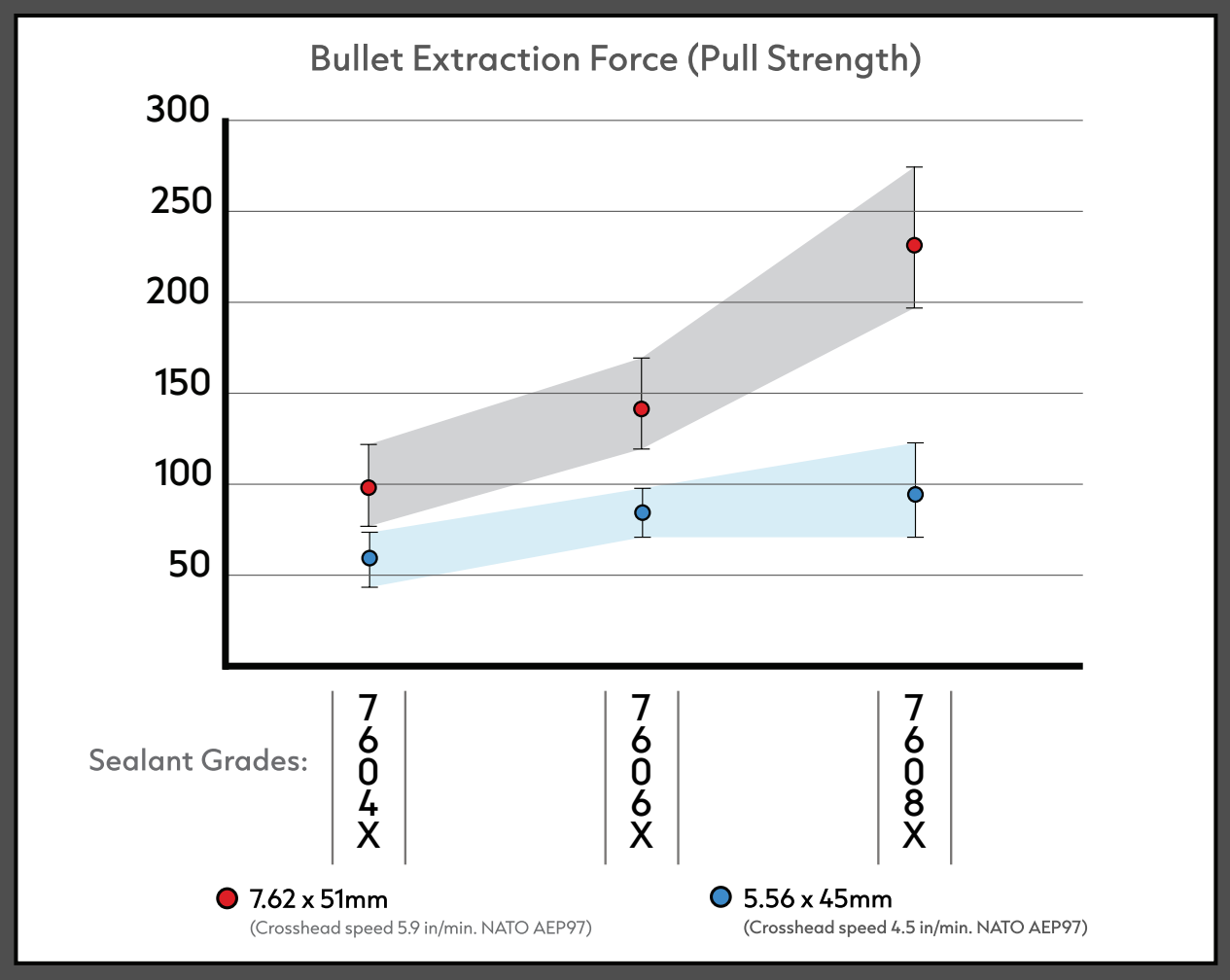
Contact Hernon® to discuss which grade would best meet your specific requirements!

GRADE	COLOR	VISCOSITY @25°C, cP	STRENGTH	Surface Tension mN/m
76040	CLEAR	5-20	LOW	28.6
76041	RED			
76060	CLEAR		MEDIUM	29.0
76061	RED			
76070	LT. YELLOW	3-20	HIGH	31.3
76081	CLEAR	8-15		32.8
76082	GREEN			
76083	BLUE			
76084	RED			
76301	RED	5-10	MEDIUM	27.0
76401*	RED	5-15	LOW	29.0

*** New grade! Offers excellent flexibility to withstand rough handling.**



HERNON'S AMMUNITION SEALANT DATA



Cartridge	7.62mm (Crosshead speed 5.9in/min, AEP97)			5.56mm (Crosshead speed 4.5in/min AEP97)			EAS Properties	7604X	7606X	7608X
	7604X	7606X	7608X	7604X	7606X	7608X	Specific Gravity	0.98	0.92	1.04
External Ammunition Sealants:	7604X	7606X	7608X	7604X	7606X	7608X	Viscosity @ 25°C, cP	5 -20	5-20	8-15
Mean (lbf)	99	143	235	55	82	98	Cure time by Ultracure® 9* (seconds)	3	3	3
Standard Deviation	23	22	39	12	13	31	Surface Tension (mN/m)	28.6	29.0	32.8
Coefficient of variation	23	16	16	22	16	32	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 (Hernon 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
48642	MEDIUM	BLACK	UV
48643	HIGH	PURPLE	UV
53162	MEDIUM	LT. YELLOW	UV
53162HV	HIGH	LT. YELLOW	UV
53170HV	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 Ammunition Sealants & Products

- » **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® 53400 & 53401:** Engineered for pyrotechnic and tracer applications, these modified epoxies provide reliable moisture sealing while allowing combustion when exposed to ignition sources. Ideal for sealing the bases of tracer projectiles or any application where exposed pyrotechnic mixtures need sealing. Tuffbond ensures compatibility with energetic mixtures and supports efficient ignition.
 - **53400:** High viscosity, quick room-temperature cure, minimal shrinkage and easy handling
 - **53401:** Lower viscosity version for enhanced application versatility



Tuffbond® 53400

BULLET TIP ID & AIM 1200

Ammunition Identification Machine

The **Ammunition Identification Machine 1200** is a patented system for applying Hernon's **Bullet Tip ID Coating** to ammunition for easy identification purposes.

Features of **AIM 1200**:

- » Fully automated process utilizes bulk feed elevators and collators to feed the bullet tip coating & UV curing process
- » Coats up to 120 parts per minute (caliber dependent)
- » Utilizes Hernon's patented ink jet application system to efficiently apply Bullet Tip ID coatings and Hernon's Ultracure® 1100 (365nm UV LED curing system) to fully cure the coating in seconds

Features of **Bullet Tip ID**:

- » Allows for easy vision inspection and identification of ammunition rounds
- » Excellent adhesion and scratch resistant properties
- » Coating is UV cured in seconds leaving the rounds ready for immediate use or packaging
- » No solvents; single component
- » Very low volume per round ensures low processing costs
- » Multiple colors available



**UNPREDICTABLE
ENVIRONMENT?**

**PREDICTABLE
AMMUNITION!**



HERNON'S AMMUNITION SEALING PROCESS



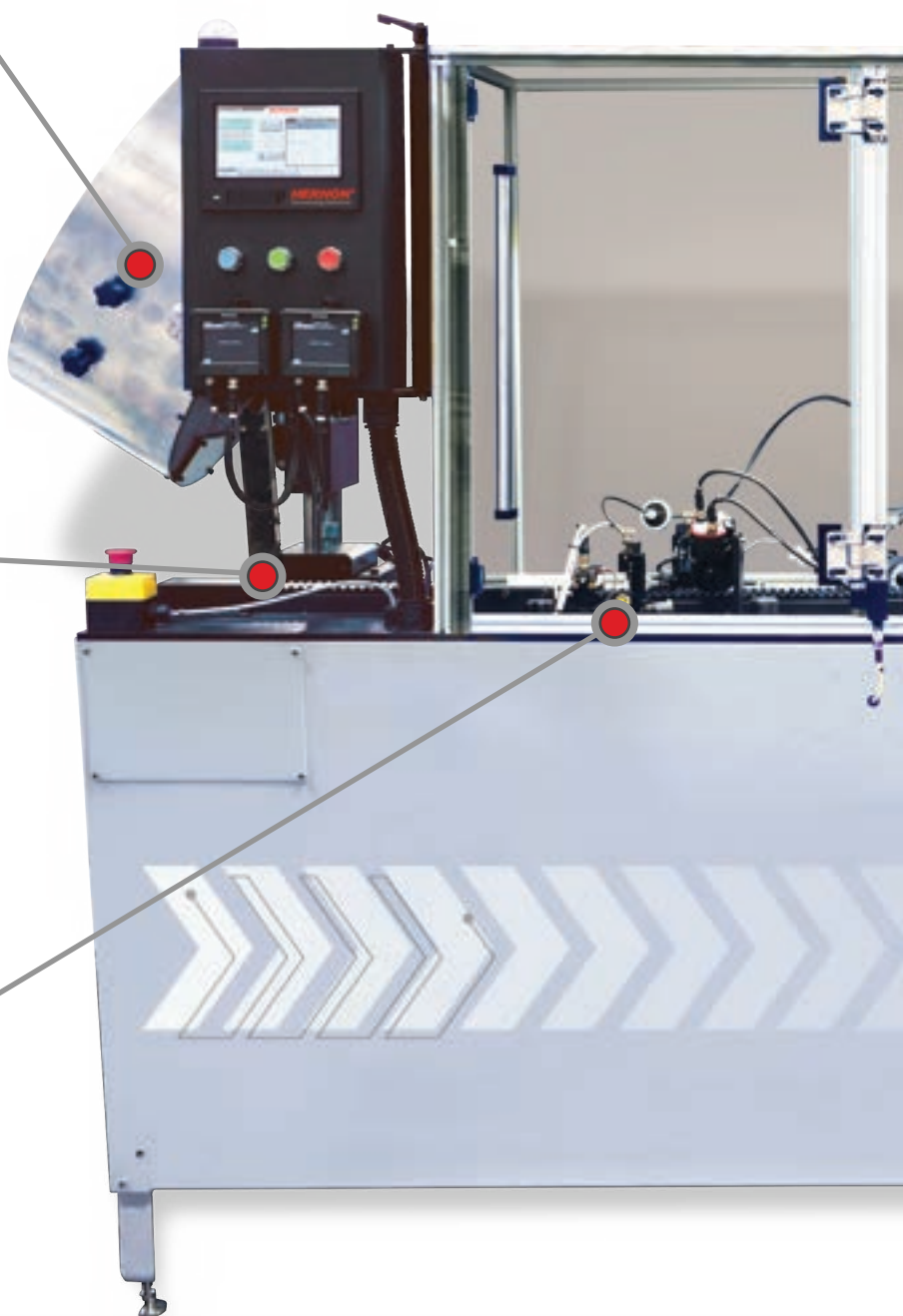
1. Rounds are typically loaded in bulk to a bowl feeder/collator which properly orients the rounds.



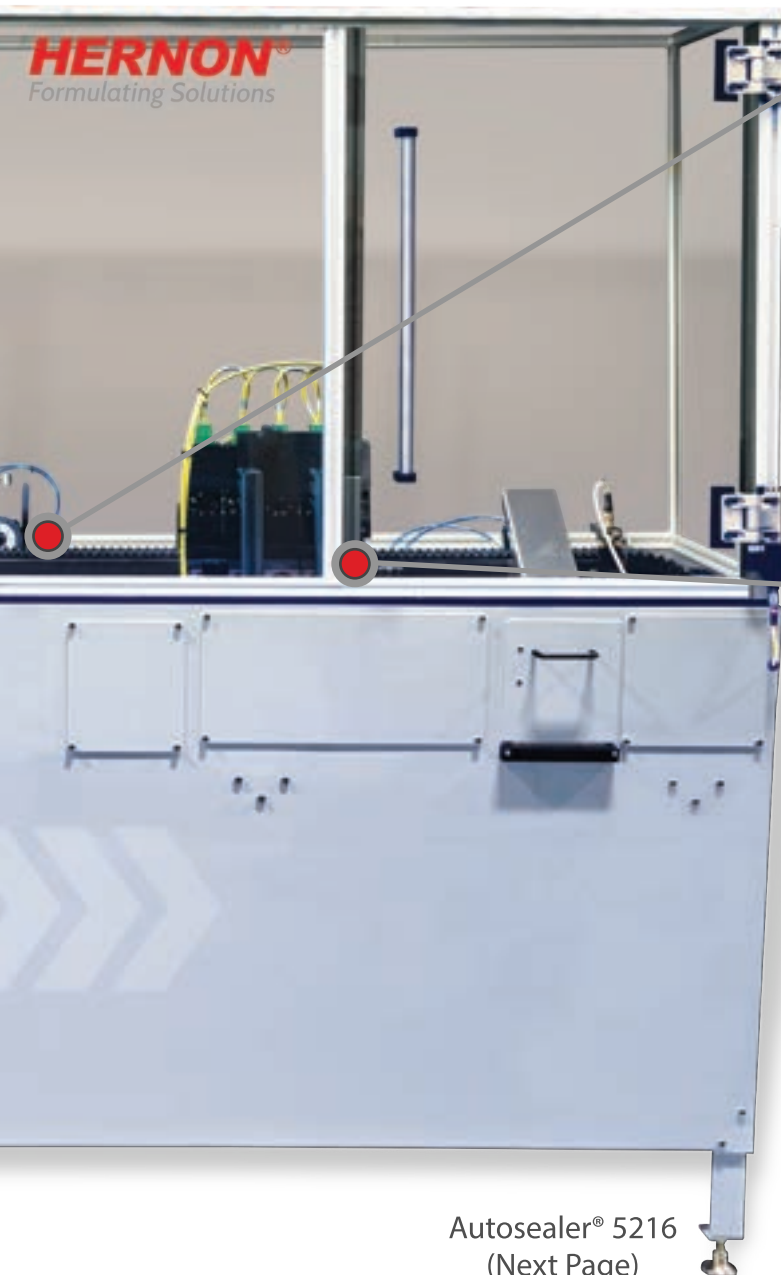
2. Zig zag chute loads rounds on to an inline conveyor.



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



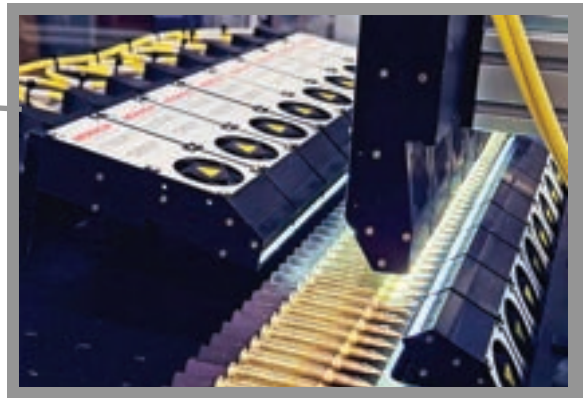
There are numerous optional features to choose from in Hernon's ammunition sealing process



Autosealer® 5216
(Next Page)



4. Vision inspection detects any sealant 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

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

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

- » **Autosealer® 5216:** 120ppm
Pt#: 110020029
- » **Autosealer® 5226:** 240ppm (caliber dependent)
Pt#: 110020301
- » **Autosealer® 5251:** 60ppm (50 BMG)
Pt#: 110020031



Scan for a video of the
Autosealer® 5226



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
- » Dedicated HMI for vision inspection
- » Auto-purge functionality
- » Heavy duty welded frame
- » **IP65**
- » **CE**

Dimensions	86" x 87" x 74" (2184.4 x 2209.8 x 1879.6mm)
Throughput	Up to 240ppm (Caliber dependent)
Electrical	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 casemouths 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.

Part #: 110020050

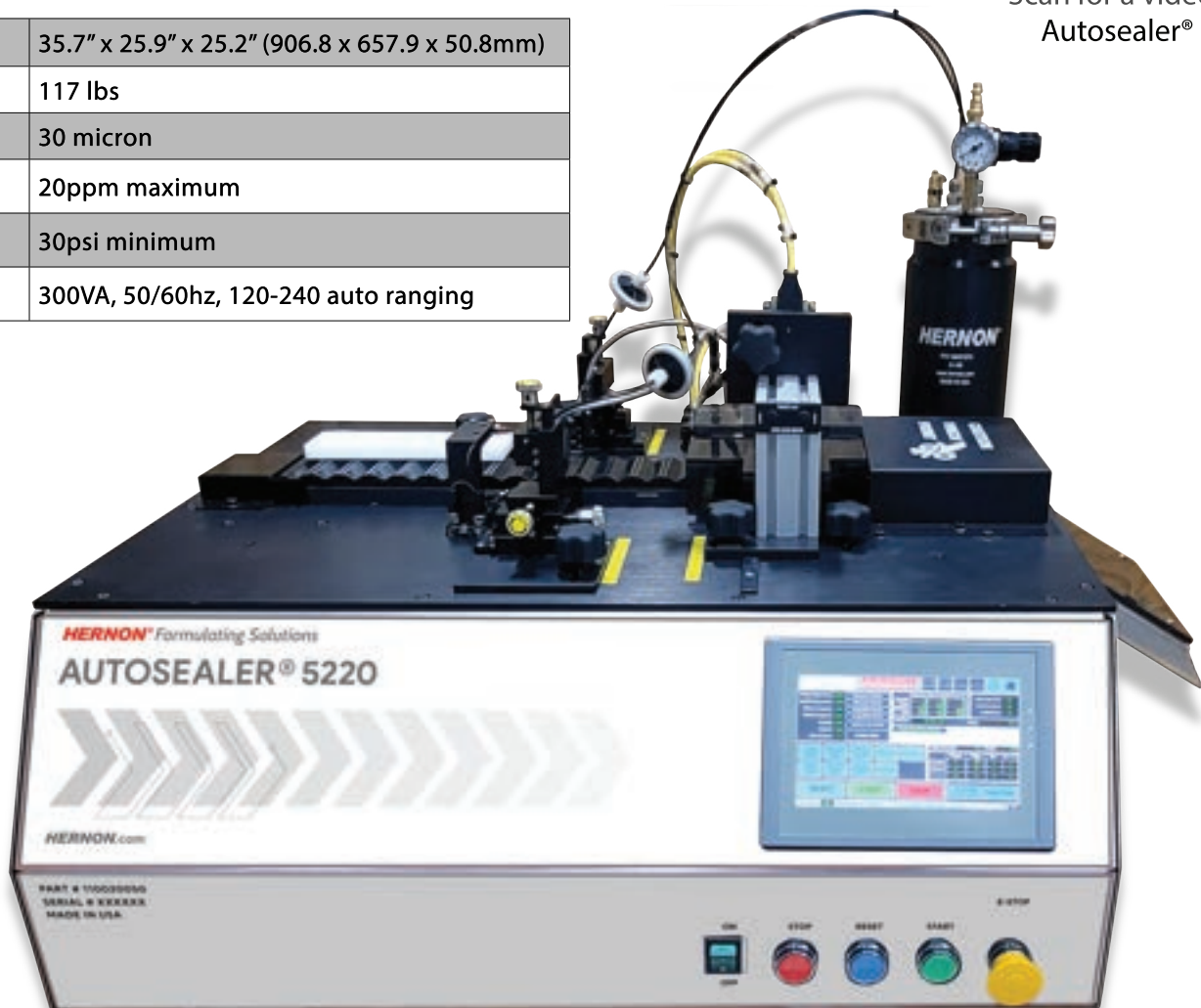
Features:

- » **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

Hernon® offers a complete line of **Sureshot®** precision dispensing valves capable of dispensing numerous types of materials, however Hernon's ammunition sealing systems utilize the Sureshot® 3510 almost exclusively. When properly maintained, the 3510 has proven to be extremely durable and reliable in high-volume, demanding, 24/7 production environments.

Visit Hernon.com for more information regarding other Sureshot® dispensing valves!

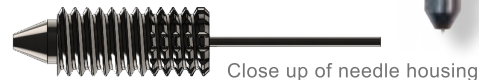
Sureshot® 3510

Part #: 110020049

Features:

- » Precision, semi-automatic & non-contact dispensing of low viscosity fluids/sealants
- » Extremely durable design
- » User friendly design: easy to clean, repair or replace clogged/damaged tips
- » Positive shutoff, no seals
- » Non-contact "jet" dispensing
- » Cycle rate > 500/minute

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



UV CURING LIGHTS

Hernon produces a full lineup of **Ultracure®** UV LED curing lights for a wide variety of applications that utilize UV curable adhesives, sealants or materials. However, the Ultracure 6, 8 and 9 (all below) are used almost exclusively for Hernon ammunition sealing applications.

Ultracure® 6

Part #: 107-022

The Ultracure® 6 is a high output UV LED curing light designed to quickly and completely cure UV adhesives and sealants. This curing light has built in power regulation, high temperature protection and is fan cooled to ensure consistent long term operation while outputting a maximum intensity UV light. The Ultracure® 6 can be installed alone or in a series to produce a UV light bath across manufacturing conveyor belts.

Dimensions: 6" x 2" x 1.5" (152.4 x 50.8 x 38.1mm)



Ultracure® 8

Part #: 107-033

The Ultracure® 8 is a high output UV LED curing lamp designed to quickly and completely cure UV adhesives and sealants. This curing light has built-in power regulation, over temperature protection and is liquid cooled to ensure consistent long term operation while outputting a maximum intensity UV light.

Dimensions: 2.275" x 1.25" x 1.86" (57.79 x 31.75 x 47.2mm)



Ultracure® 9

Part #: 107-034

The Ultracure® 9 is the same base model as the Ultracure 6 except that the 9 includes a focused lens that concentrates the ultraviolet light to provide an extended curing range of 3x the standard distance of the 6 while still maintaining the light intensity needed to produce a curing reaction. The Ultracure® 9 can be installed alone or in a series to produce a UV light bath for UV curing applications.

Dimensions: 2" x 1.3" x 6.2" (50.8 x 33.02 x 157.48mm)



Ultracure® 25

Part #: 106022301

The **Ultracure® 25** is a compact, rechargeable UV flashlight that is designed for quick inspections or detection of UV curable materials. UV curable materials fluoresce when exposed to UV light, making it easy to determine if rounds have sealant applied, detect any sealant imperfections, etc.

Dimensions: 4.75" x .875" (120.65 x 22.23mm)



R125 RESERVOIR

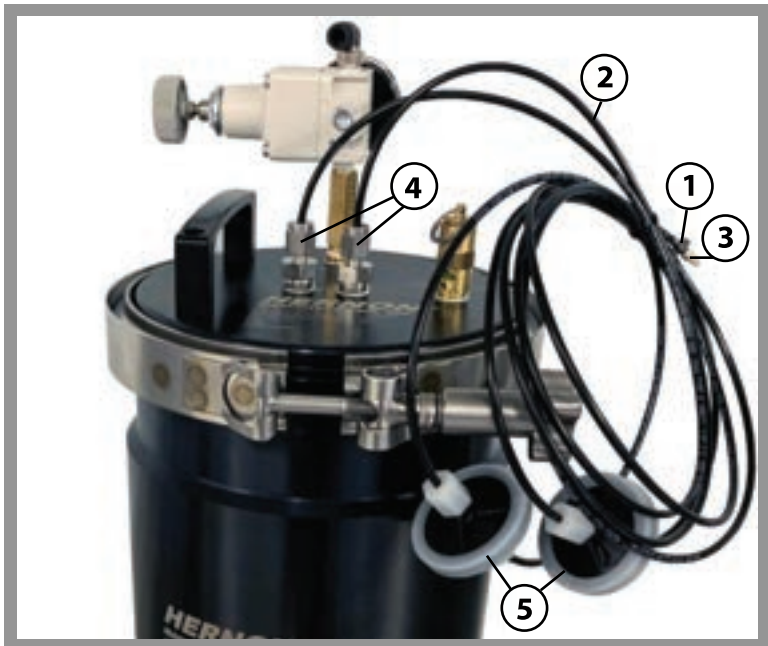
Hernon offers an array of reservoirs in a variety of sizes and with many dispensing tube fitting and porting options to choose from. These durable reservoirs are ideal for adhesive, sealant, solvent or lubricant dispensing systems. Hernon reservoirs are designed for consistent dispensing, quick refills and to be rugged enough to withstand extended use in demanding industrial production environments. The R125 is a 1 gallon pressure reservoir and is the most common reservoir used in Hernon ammunition sealing systems.

Product Part #: 110020048

Features/Options:

- The R125 offers 1/8", 1/4" and 3/8" dispense tube sizes
- Tubing, fittings & regulator sold separately
- Optional low level sensor

Internal Dimensions	5.75" ID x 10" (146mm x 254mm)
Internal Volume	1 Gallon (3.8 Liters)
Air Pressure Max	0-100psi (7 bar)
Weight	13lbs (5.89 kg)
Material	Anodized aluminum



	Part #	Description
1	109-054	Clamp 1/8" Dual Ear Clamp
2	101-035	Tubing 1/8" Nylon Black - .08 ID
3	109-055	6-40 x .085 Barbed Tube Fitting
4	101-055	Tube Fitting, Bored-Through Male Connector, 1/8" Tube OD x 1/4" Male NPT, Stainless Steel
5	110020051	Filter Assembly w/ Two Compression Nuts 5/16 - 24

PULSE FOLLOWERS

Pulse Followers are designed to integrate Hernon's Sureshot 3500 series dispense valves into existing (non-Hernon manufactured) systems and allow the system's controls to issue dispense commands directly to a Pulse Follower. The dispense-command pulses are issued to the Pulse Follower for each valve installed. The on-time of the command pulse sets the time the dispense valve is on.

The controls issuing the command pulse must be able to produce pulses down to 1-millisecond lengths or faster. The Pulse Follower System will respond to 0.5 millisecond or longer pulse lengths. The Pulse Follower provides two statute signals per valve: Valve OK Status and Valve Ready Status. It should be noted that while the valve is on - the valve is not ready for another dispense command.

Pulse Follower Systems are typically used for Hernon External Ammunition Sealants but can be used for any material that is compatible with the Sureshot 3500 series of valves.

Product Part #:
110-110

Features:

» MODBUS RTU optional upon request



BULK FEEDING OPTIONS: BOWL FEEDERS

Bowl Feeders automatically and continuously loads and orients large amounts of ammunition. Multiple calibers can be fed using the same base unit and they are capable of handling calibers ranging from 380ACP to 338 Lapua magnum. (Larger or smaller sizes possible upon request.) Counter clock wise rotating bowls and tooling are available.

Product Part #:

24" w/ Dunker Motor: 110020074

24" w/ Teknic Motor: 110020240

24" CCW w/ Dunker Motor: 110020311

30" w/ Dunker Motor: 110020274

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

Features:

- » Zig zag sensors automatically detect low and high volume
- » Interior mounted arms help keep rounds correctly oriented
- » Sound reducing lid (not shown)
- » Adjustable bowl angle
- » Easy tooling changeover for seating different calibers/cartridges
- » Rear mounted removable powder release cover facilitates easy cleaning
- » Dunker motor options are IP65 rated
- » 30" bowl is rated for **240ppm** for rounds up to 7.62/.308/6.8; Slower speeds are necessary for larger rounds



24" Bowl



30" Bowl

BULK FEEDING OPTIONS: AUTOVATORS

Hernon® **Autovators** are designed to bulk feed ammunition into a collator or hopper. Using heavy duty welded buckets to transport parts, the elevator eliminates rigorous manual lifting and can safely move rounds from the built-in vibrating hopper up to its destination while preventing damage to parts in the process. Autovators can supply in excess of 240+ PPM (caliber dependent) at 10 buckets per minute. Can bulk feed a wide variety of parts including but not limited to projectiles, cartridges, live rounds and more.

Product Part #: 110020292

Features:

- » Gently conveys parts to avoid possible damage
- » Torque limiting motor allows for automatic jam shutdown
- » Ergonomic, user friendly design with minimal footprint
- » Configurable bucket levels
- » Easily integrates into existing manufacturing production lines
- » Automatic receptacle level sensor
- » User friendly color touchscreen HMI
- » **IP65**
- » **CE**

Range of parts	Projectiles, cartridges and live rounds from 9mm to 338 Lapua
PPM or output range	240ppm (caliber dependent)
Dimensions	25" x 80" x 59" (635 x 2032 x 1499mm)
Air Pressure	60-100 psi
Electrical	50/60hz / 100-240V, 500VA



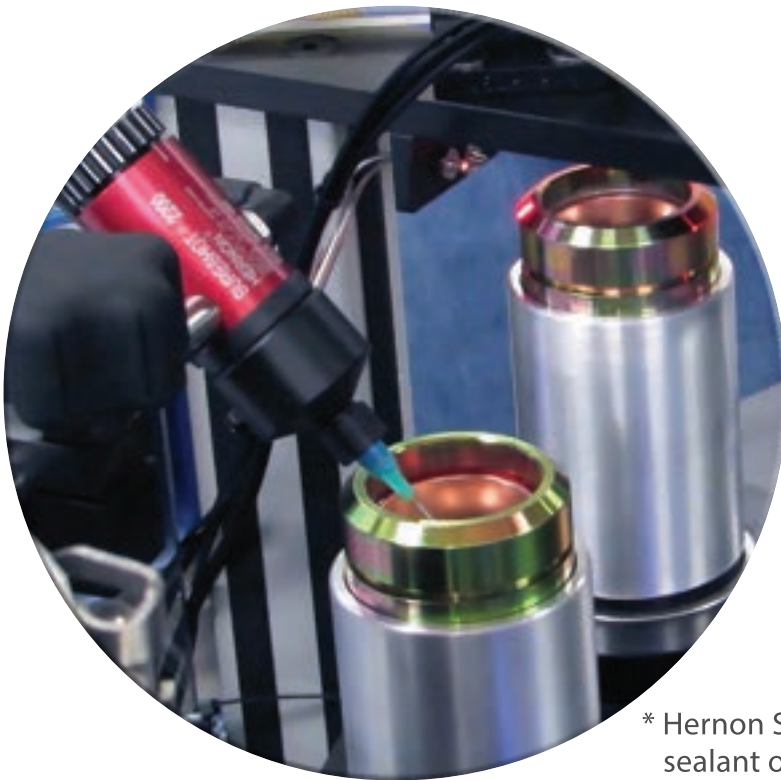
CUSTOM APPLICATION EQUIPMENT

Since 1978 Hernon has developed and manufactured countless custom application solutions for our customers. Supported by in-house chemical laboratories *and* engineering teams, Hernon 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 Hernon'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.



* Hernon Plate Loaded Ammunition Sealing System



* Hernon Sureshot® 2200 dispensing sealant on explosive shaped charges

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

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

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



