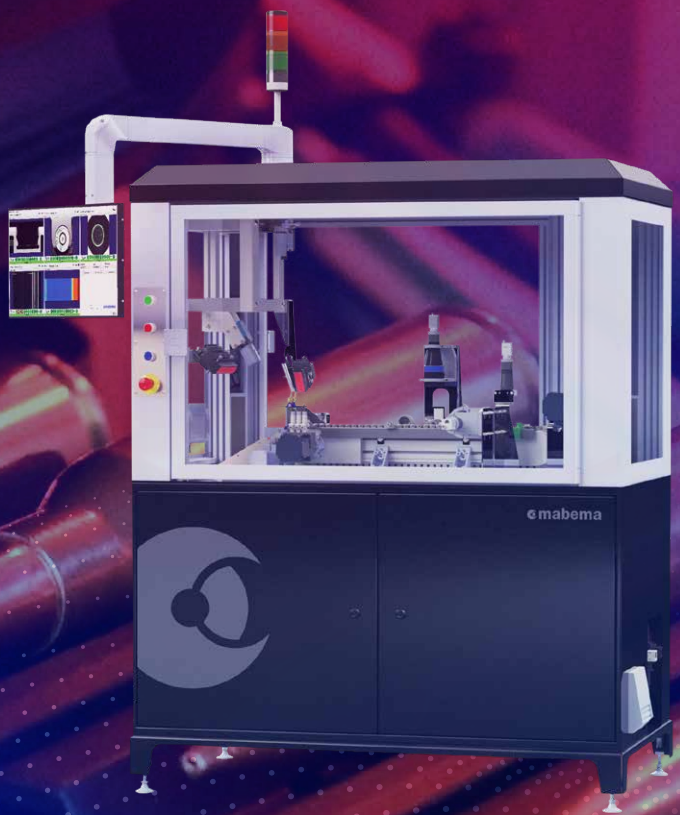
mabema

Ammunition inspection for precision.

InSpec



Driving the Future of Machine Vision

Mabema is divided into three different business areas

Our history began in the Swedish nuclear power industry in the early 2000s where we learnt to deliver high-quality vision systems to customers with high demands. We analyze more than 120 billion images every year in the most demanding manufacturing industries such as medicine and automotive.

We have broad and high-level R&D expertise in advanced camera technology and image processing that enables innovative, easy-to-use and state-of-the-art machine vision solutions.

At Mabema, we are passionate about what we do. We are at the forefront of the development of machine vision technology in Europe, and we are well established in the US ammunition industry. It is our passion that drives us to do better every day. We offer high competence support and service to our customers to ensure that our products always operate at the highest level possible.

InSpec

InSpec is carefully developed to ensure **high-quality ammunition production**. Through single source laser triangulation, we can guarantee accurate inspection, free from multiple sources of miscalculations.

It objectively **detects, identifies and quantifies** critical defects. With the throughput of 120+ parts per minute the machine can thoroughly detect 30+ defects, faster and more accurate than the human eye. Rejected parts are **sorted into four different reject bins** depending on the defect, enabling **fast objective inspection.**

A few examples of the defects our machines detect are **bulges, scratches, dents, neck folds, runouts** and more. With real-time statistics, you can quickly locate where in the manufacturing process maintenance actions are needed to **minimize rejected cases or cartridges**.

The changeover between calibers is straightforward, takes less than three minutes and **does not require tools** nor camera and light source adjustments. Our InSpec machine comes in **two different models** depending on caliber size: standard and large. No matter the model we keep the machines at the **small footprint** of 770 x 1 450 x 2 350 mm / 30 x 57 x 92.5 ” by using the same cabinet.

Model	Diameter of case body	Total component length
InSpec Standard	6 – 16 mm / 0.23 – 0.63 ”	15 – 100 mm / 0.6 – 3.9 ”
InSpec Large	14 – 25 mm / 0.55 – 0.98 ”	70 – 140 mm / 2.7 – 5.5 ”

Ammunition inspection for precision

With the throughput of 120+ parts per minute the machine can thoroughly **detect 30+ defects,** faster and more accurately than the human eye. **Rejected parts are sorted** into four different reject bins depending on the category of defect, enabling **fast objective inspection.**

Defect-based sorting

Instead of sorting all defects in one single bin, InSpec **sorts defects per defect category**. This provides a quick visual overview of the quality status of the current batch.

Quick caliber change

When needed, a caliber changeover is done in **less than three minutes** with no adjustments of cameras nor light sources.

Compact footprint

InSpec has a **small footprint** of 770 x 1 450 x 2 350 mm / 30 x 57 x 92.5” which makes it one of the smallest ammunition inspection machines on the market.

Controlled feeding

The parts are **transported in fixed positions** on a conveyor belt operated by servo, independent of friction and gravity.

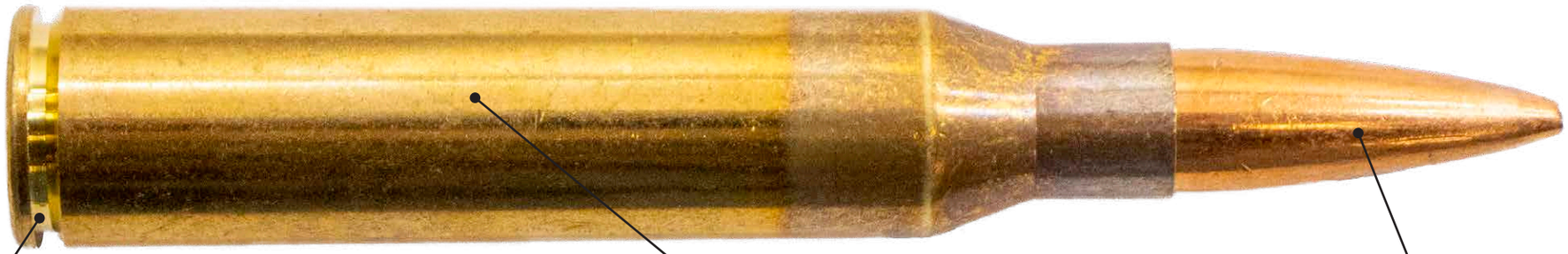
Full 360° 3D surface inspection

- Bulges
- Soft dents
- Hard dents
- Runouts
- Scratches
- Other geometrical deviations

Repeatability

Unmatched repeatability. Reliable results – every time.

Full body inspection



Extractor Groove

- Missing extractor groove/extractor defects
- Extractor thickness and angle
- Rim thickness
- Rim diameter
- Extractor diameter

Head

- Head stamp
- Primer presence, dents and scratches
- Colored sealant coating (paint if applicable)
- Crimp (riveting)
- Flash hole presence, diameter and placement
- Chips or dirt in flash hole
- Inverted primer

Case

- Bulges
- Cracks
- Dents
- Scratches
- Folds
- Total length
- Annealing
- Surface stains
- Runouts

Projectile

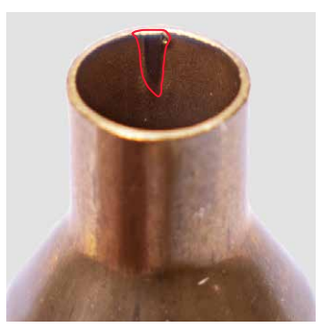
- Bullet tip shape
- Wrong bullet type
- Larger tip defects
- Color of paint
- Scratches

Mouth

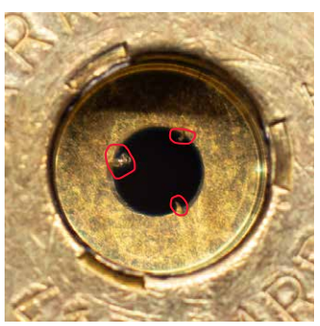
- Missing material
- Cracks
- Circularity
- Chips
- Notches
- Burr
- Mouth folds

Inspection examples

InSpec offers unparalleled defect detection capabilities, capable of identifying 30+ defects. One of the key features of InSpec is its intelligent sorting system, which categorizes defects based on their location on the part's body. This enables an efficient defect sorting process, while also ensuring that defective parts are separated and handled appropriately.



1. Mouth split

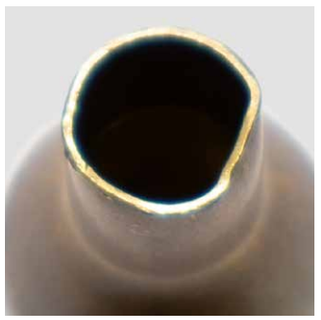


2. Chip in flash hole

3. Chip in mouth

4. Scratch on neck

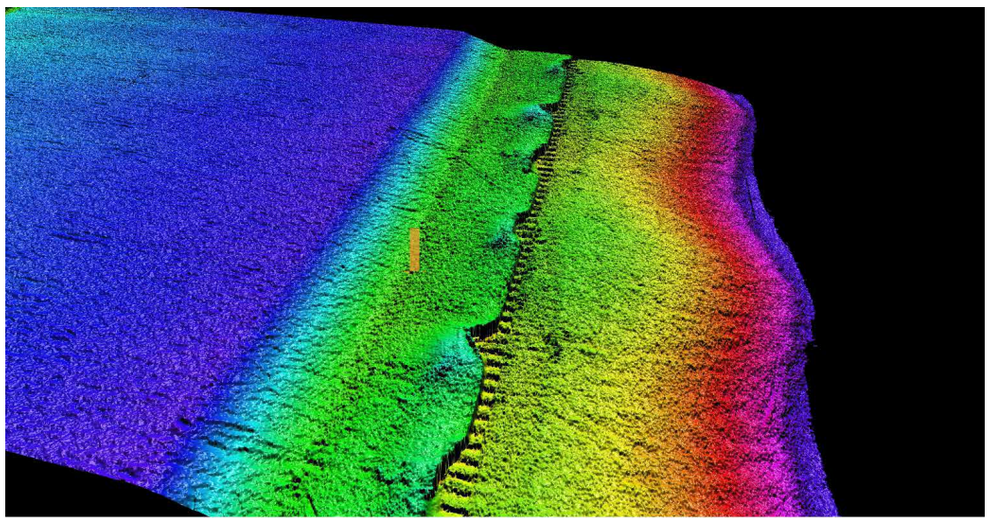
5. Neck fold



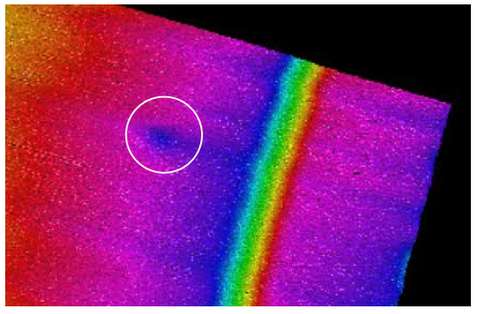
6. Bent mouth

Some defects that the machine detects can be difficult to recognize with the human eye, such as scratches or splits. The images above serve as references for defects that InSpec easily detects.

Unique 360° 3D inspection



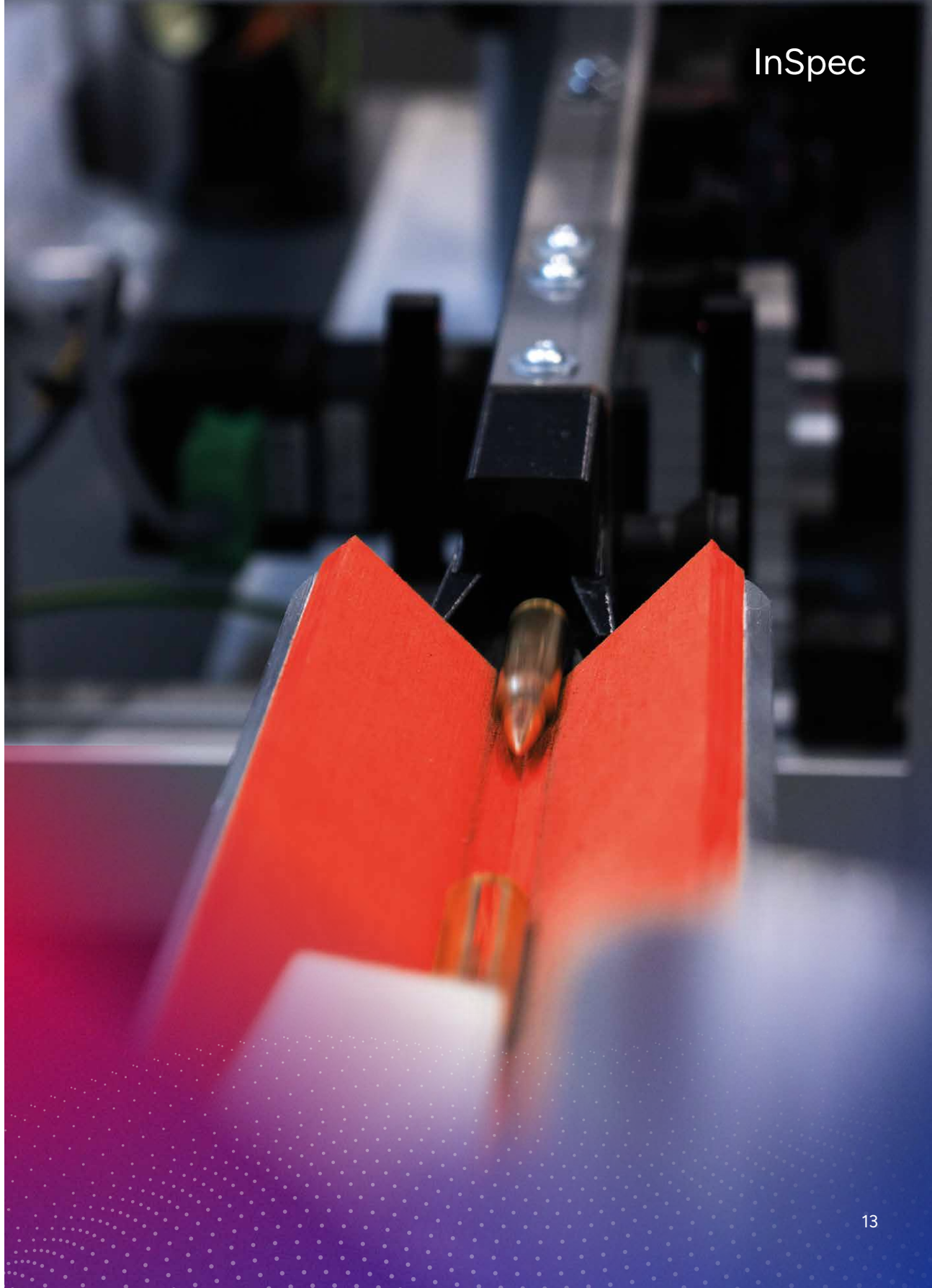
During rotation several images are acquired and stitched together to a full 360° 3D image of the unwrapped surface.

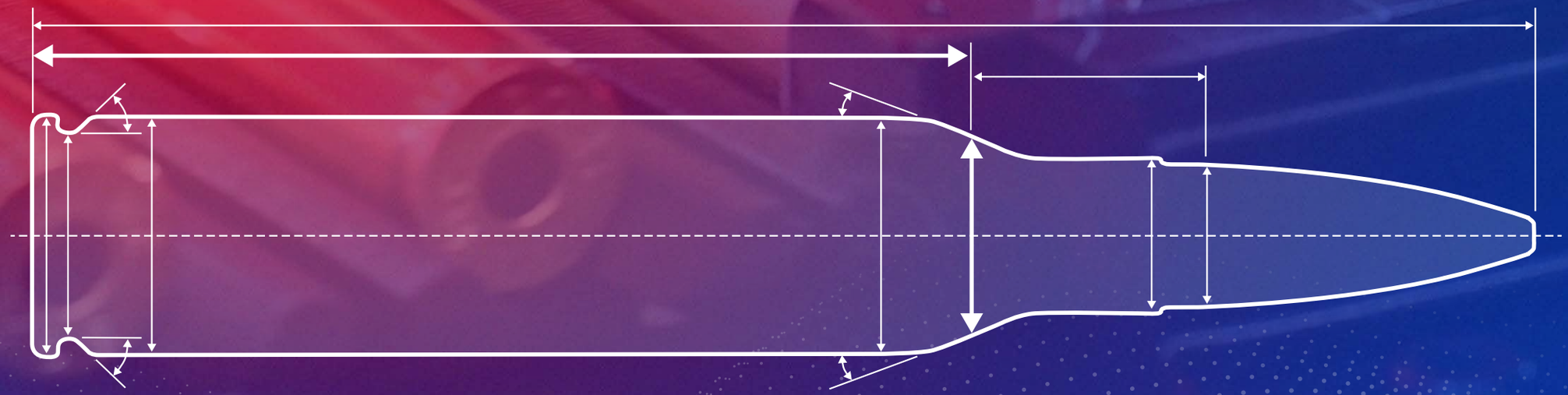


Above is a dent at the body detected with 3D technology. 3D data enables detection of geometrical defects at high resolution.

Technical Data

Footprint (H, W, D)	2350 x 1450 x 770 mm/7´8.5" x 4´9" x 2´6.3"
Weight	550 kg / 1213 lb
Noise level	Max. 70 dB
Throughput	120 parts per minute
Power requirements	390 - 490 VAC, 3 phase | 50 - 60 Hz Min Amp. 11 A
Air Pressure	6 bar / 87 psi
Resolution	0.01 - 0.1 mm/pixel
Communication	Ethernet (TCP/IP)
Remote access	Security Certified





Integrated dimensional inspection

The optional dimensional inspection ensures every cartridge meets SAAMI and C.I.P. standards. Critical measurements such as overall length and head-to-shoulder distance are captured with exceptional accuracy and repeatability, supporting consistent quality levels.

New Feature

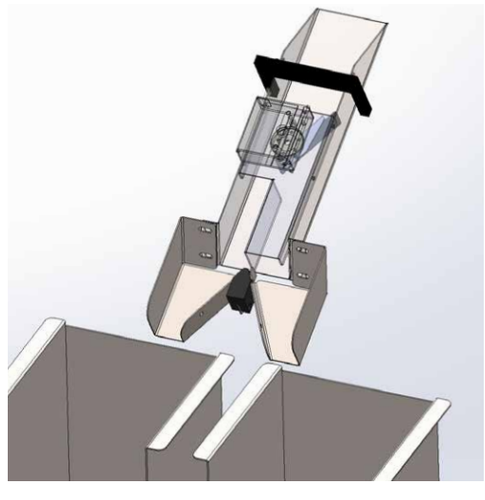
- **Head to Shoulder (aka Length to Shoulder)**
- **Overall length**
- **Head to ogive**
- **Runouts**
- **Missing extractor groove**
- **Extractor diameter**
- **Rim thickness**
- **Rim diameter**

Laser marking of head stamps

To reduce your costs our machines can be combined with integrated laser marking of your or your customers' head stamps. Unlimited number of headstamps can be stored in the software library.

Automatic bag filler

For easy and accurate filling of ammo bags InSpec has an automatic bag filling function. When one bag is full, the machine automatically switches to the next bag. The number of parts in a full bag can be customized to your needs.



New Product

Meet InFeed: The Next Generation of Ammunition Feeding Is Here

InFeed

Fast, smart and uncompromising.
The new ammunition feeder from Mabema.

We're excited to introduce InFeed, the latest addition to Mabema's Ammo lineup – a next-generation feeder designed to set a new standard for precision, speed, and reliability in ammunition handling. InFeed was developed to make your production faster, smoother and smarter without taking up extra space nor requiring expensive interchangeable caliber plates.

WHY INFEED STANDS OUT:

300 ppm – and still compact

With speeds up to 300 cartridges per minute for rifle ammo – and even higher for pistol ammo, InFeed outpaces the competition with a footprint that actually fits your floor.

Unmatched consistency

Round after round, InFeed delivers perfect head- or bottom-down orientation. That means no manual corrections and no surprises.

Gentle handling

Precision meets care. InFeed ensures soft transitions and limited bouncing to protect your high quality.

Built for the real world

Compact, quiet and operator-friendly. InFeed is designed to perform where you need it most. Whether you're feeding an InSpec system or streamlining your existing setup, InFeed is built to keep your ammunition moving – fast, precise, and always in control.

Read more on the website

mabema.com/ammo

mabema

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