DEFENDER NET BARRIER

M50 P2 · LESS-THAN-LETHAL ACTIVE VEHICLE BARRIER

A barrier that arrests the vehicle instead of shearing it. Crash tested at Calspan at both ends of its range — **21 ft 3½ in** and **72 ft** — and M50 P2 at both. Listed on the DoD Anti-Ram Vehicle Barrier List with no characteristic note against it.

ASTM F2656-15 · M50 P2 | 21′ TO 72′ SPAN | BI-DIRECTIONAL | MADE IN THE USA

STOP THE TRUCK. DON'T KILL THE DRIVER.

A wedge or a bollard stops a vehicle by refusing to move. All the energy goes into the vehicle over a very short distance, and the occupant takes what the structure does not.

A net stops it by taking the load into the ropes and the energy absorbers behind them, over a longer distance. The vehicle still does not get through — but the deceleration is spread out rather than delivered at once.

That difference matters most on the day nothing is actually wrong: the wrong-way driver, the confused delivery truck, the vehicle that misreads the lane. A rated barrier is going to be hit by those far more often than by the threat it was bought for.

Calspan, after impact — the vehicle is arrested and disabled, the cab intact.

RATED AT BOTH ENDS OF THE RANGE

Most barriers are tested once. The Defender Net was crash tested at **21 ft 3½ in** and again at **72 ft** — and returned **M50 P2** both times. Every span between the two is covered by interpolation on the DoD list.

M50
P2 AT BOTH TESTED SPANS

72′
MAXIMUM CLEAR SPAN

<2s
EMERGENCY DEPLOY

30min
MINIMUM RESET AFTER IMPACT

SPECIFIED & DEPLOYED FOR

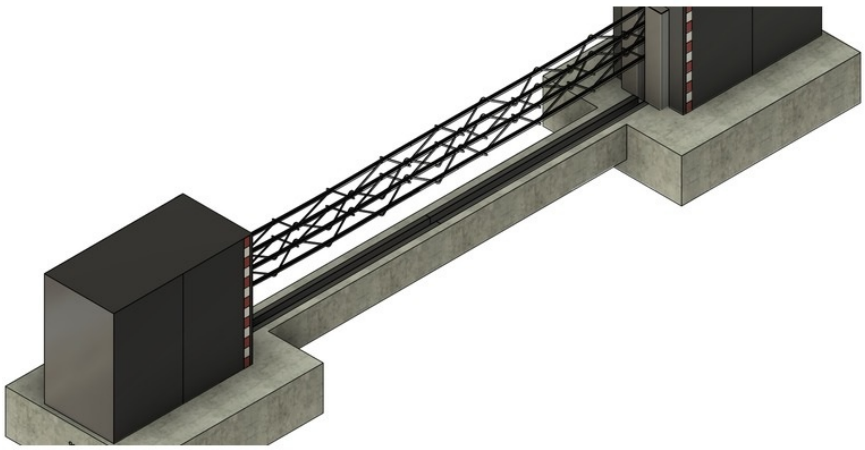
- Entry control points & ACPs
- Military installations & bases
- Federal & agency facilities
- Wide undivided roadways
- Reversible & contraflow lanes
- Data centers & network facilities
- Airports & transportation hubs
- Ports, rail & logistics yards
- Corporate & institutional campuses

ASTM F2656-15 | M50 · P2 | LISTED — DOD ANTI-RAM VEHICLE BARRIER LIST

Crash tested by Calspan Corporation, Buffalo, New York — report BR0001 (18 March 2020) and report BR0015 (2 July 2020). Both configurations appear on the March 2026 DoD Anti-Ram Vehicle Barrier List for ECFs/ACPs — see page 5.

TWO STANCHIONS. FOUR ROPES.

There is nothing in the middle of the lane. A stanchion stands at each side of the opening, four synthetic ropes run between them, and when the barrier is down the net lies in a shallow steel pan flush with the road. Traffic drives over it without knowing it is there.



Deployed — stanchions at the shoulders, the net across the lane, nothing in between.

Close up — the four horizontal ropes, the cross-weave that ties them together, and the pan they drop into.

WHAT'S IN THE SYSTEM

1 Anchor stanchions

Galvanized steel weldments, one each side of the opening. They take the impact load and pass it into the foundation.

2 Energy absorbers

Four at each end, eight in the system. They are what turns an abrupt stop into a controlled one — and they are reusable.

3 The net

Four 2″ synthetic ropes at 10″ spacing, cross-woven with ½″ rope and jacketed in an abrasion-resistant cover.

4 Road pan

A shallow steel pan set flush in the road surface. The net rests in it when down, so the lane stays level.

Rope	2″ dia. × 4	**Break strength**	380,000 lb each	**Spacing**	10″ vertical

THE ROPE IS A REPLACEABLE PART

Each rope terminates on a removable pin inside the stanchion. A rope that has been loaded, cut or abraded comes out and a new one goes in — without touching the stanchion, the absorbers or the foundation.

TESTED AT BOTH ENDS OF THE RANGE.

A barrier tested at one length is rated at one length. The Defender Net was crash tested twice — at its shortest span and at its longest — and returned **M50 P2** on both. That is what makes every span in between available to a specifier rather than a special case.

THE TEST RECORD

	DEFENDER NET 21′ 3½″	DEFENDER NET 72′
Report	Calspan BR0001	Calspan BR0015
Test date	18 March 2020	2 July 2020
Standard	ASTM F2656-15, M50	ASTM F2656-15, M50
Test vehicle	15,115 lb medium duty truck	15,010 lb medium duty flatbed
Impact speed	49.4 mph (79.5 kph)	51.0 mph (82.1 kph)
Kinetic energy	1,275,098 ft-lb	1,305,113 ft-lb
Dynamic penetration	**2,047 mm — 6.7 ft**	**5,986 mm — 19.6 ft**
Rating achieved	**M50 · P2**	**M50 · P2**
After impact	Vehicle disabled, arrested	Vehicle disabled, arrested

Post-impact at Calspan — the vehicle is stopped and disabled, still held in the net.

WHAT P2 MEANS

Under ASTM F2656-15 the penetration rating measures how far the cargo bed travels past the barrier. P1 is up to 3.3 ft; **P2 is 3.3 to 23 ft**; P3 runs to 98 ft. A net trades a short arrest distance for a lower rate of deceleration — that is the design, not a shortfall.

ACCREDITED, NOT SELF-REPORTED

Both tests were run by Calspan Corporation at Buffalo, New York. Calspan is accredited to ISO/IEC 17025 for ASTM F2656 testing by Perry Johnson Laboratories Accreditation under certificate L13-137.

EIGHT MODELS CARRY A NOTE. NONE OF THEM OURS.

Three manufacturers hold net barriers in the Active Net section of the **DoD Anti-Ram Vehicle Barrier List for ECFs and ACPs**. Twelve models are listed between them. Eight carry a note in Appendix A recording a demonstrated characteristic — and for most of those, a restriction on where they may be used. **Neither BSP model carries one.**

ACTIVE NET — MARCH 2026 LIST, BY MANUFACTURER

	BLACK SECURITY PRODUCTS	GLOBAL GRAB TECHNOLOGIES	BARRIER1 SYSTEMS
Net models listed	**2**	4	6
Models flagged in Appendix A	**0**	**4 of 4**	**4 of 6**
Highest impact rating listed	**M50**	M50 · two models are M40 only	M50
Army projects	**No restriction on the list**	**Not to be used**	**Not to be used** — flagged models
Air Force projects	**No restriction on the list**	**Recommended not installed**	**Recommended not installed** — flagged models
Remarks against the entry	**Dimensional only — tested width, foundation width, interpolation allowed**	“Barrier has a demonstrated characteristic. SEE APPENDIX A”	“SEE APPENDIX A” on four of six entries

WHAT APPENDIX A ACTUALLY SAYS

Note 3 — GRAB net barriers

“Some types of these barriers result in a undesirable characteristic when impacted by a certain type of vehicle.” Army: products “are NOT to be used on Army Projects.” Air Force: “recommended not to be installed.”

Notes 4 & 5 — Barrier1 net barriers

The Retractable Net systems and the Vehicle Arrestor 2.0-NET-400 carry the same wording, and the same Army and Air Force restrictions. A further note records trap-lid closure problems from roadway pavement expansion.

No note — Defender Net 21′ and 72′

No Appendix A reference. The remarks column records tested width, foundation width and the clear spacing between adjacent barriers — geometry a designer needs, not a caution.

CHECK IT YOURSELF — THAT IS THE POINT

This is not a BSP comparison chart. It is the U.S. Department of Defense’s own list, published by the USACE Protective Design Center and updated quarterly. Pull the March 2026 edition, turn to the Active Net pages and Appendix A, and read the entries side by side.

Source: DoD Anti-Ram Vehicle Barrier List for Entry Control Facilities / Access Control Points, March 2026 edition, Active Net section and Appendix A notes 3, 4 and 5. Model counts are of distinct net barrier entries in the Active Net section. Restrictions stated apply to the models flagged in Appendix A. Barrier1 also lists a swing gate barrier, which is not a net barrier and is not counted here.

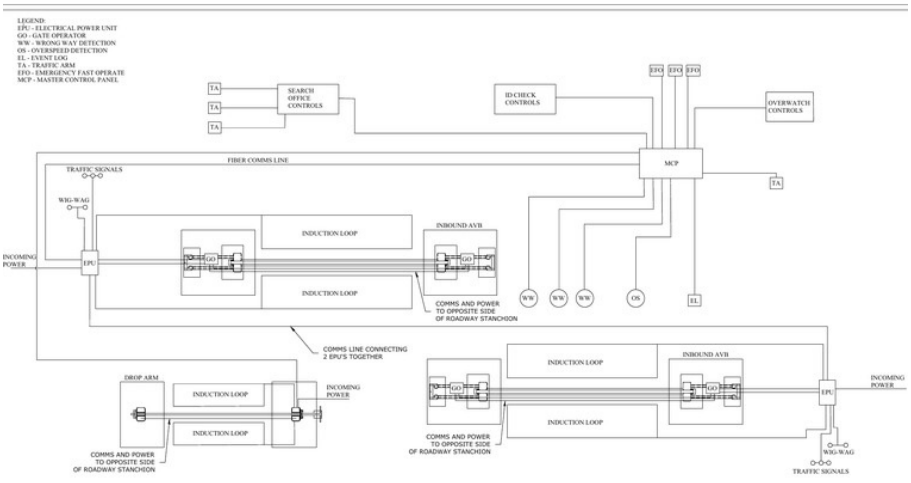
UP IN UNDER TWO SECONDS.

Emergency Fast Operate raises the net in under two seconds from any control position. Everything else — the panels, the loops, the signals, the detection — is there so that the two seconds are never the first line of defense.

OPERATION	
Emergency deploy	Under 2 seconds
Actuation	Manual, hydraulic or electro-mechanical
Direction	Bi-directional
Power	120 / 240 V AC
Duty cycle	Continuous
Ambient range	−40 °F to +140 °F
Enclosures	IP66 rated
Reset after impact	From approximately 30 minutes

CONTROL & DETECTION	
Master control panel	Central operation, event log
Remote panels	Search office, ID check, overwatch
Emergency Fast Operate	Multiple EFO stations
Vehicle detection	Induction loops, VPD
Wrong-way detection	Yes
Overspeed detection	Yes
Signaling	Traffic signals, wig-wags
Integration	Drop arm, ABVCS, PRSS

HOW A LANE IS PUT TOGETHER



Typical single-lane architecture — power unit, master control panel, loops, detection and signaling, with a drop arm on the same system.

TWO SECONDS IS THE LAST RESORT

Wrong-way and overspeed detection exist so the net can be up before anybody presses anything. EFO is what you use when the detection did not get there first.

OPTIONS

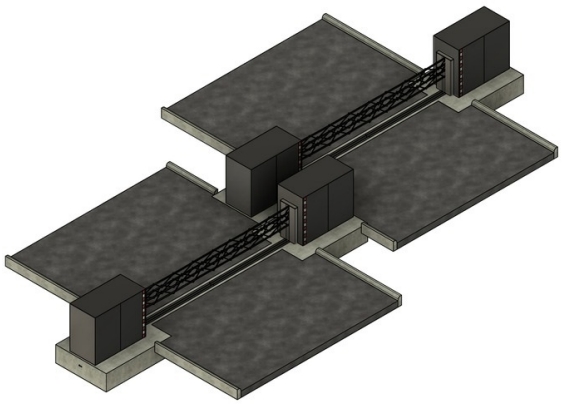
Battery back-up	24 VDC
Barrier heat	120 VAC, 20 A
Panels	Master, remote, EFO
Safeties	VPD / loop detector
Signals	24 VDC / 120 VAC

TWENTY-ONE FEET TO SEVENTY-TWO.

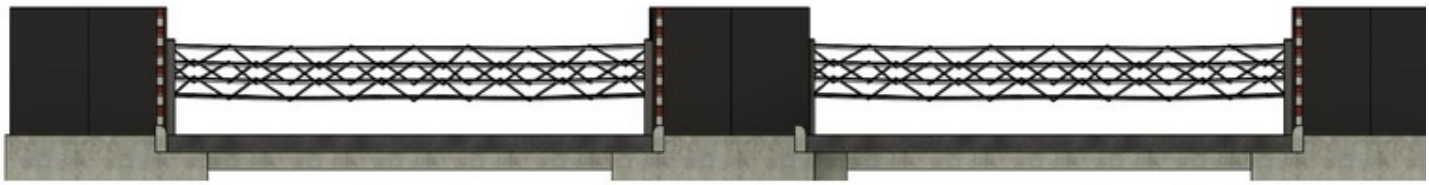
One net can cross a whole roadway. At 72 feet clear it covers up to six undivided lanes without a single obstruction between the stanchions — no center post, no median device, nothing for a driver to hit on an ordinary day.

Because both ends of the range were crash tested, the DoD list allows **interpolation between 21.29 ft and 72 ft**. A 44-foot opening is not a variance request; it sits inside a tested range.

Where a roadway has to stay half open, two nets can run in series off a shared stanchion so one direction is held while the other keeps moving.



Two nets in series on a shared center stanchion — one direction restricted at a time.



Elevation — a two-net run. Each span is independently rated and independently operated.

Six lanes, one barrier

A single 72 ft net secures up to six undivided lanes. One foundation package, one control system, one thing to maintain.

Standoff moves with span

Both spans hold P2, but penetration grows with width — 6.7 ft at 21 ft, 19.6 ft at 72 ft. Width buys lanes; standoff is what to check when you choose it.

Reversible and contraflow

Series layouts suit roadways that change direction by time of day, and entry points that cannot close completely.

HIT IT, RESET IT, PUT IT BACK TO WORK.

Most crash-rated barriers are consumables. They do their job once, and then the entry point stays closed until a replacement arrives. On a rated product that is a lead time, not an errand.

The Defender Net is designed to be reset. The energy absorbers are reusable, the ropes come out on a pin, and the stanchions and foundation are meant to survive the event they were built for. The system is **re-settable in as little as 30 minutes**.

At Calspan the foundation and steel frame showed no outward damage after a 15,000-lb impact at 51 mph — the load went where the design intended it to go.

AFTER AN IMPACT

Reset time	From ~30 minutes
Energy absorbers	Reusable
Ropes	Replaceable on a pin
Stanchions	Retained
Foundation	Retained
Road pan	Retained

THE ENTRY POINT REOPENS THE SAME DAY

A barrier that has to be replaced takes the lane out of service until it is. Resetting is the difference between an incident and a closure.

WHAT SURVIVES THE EVENT

Reusable absorbers

The energy absorption devices are designed to be reset rather than scrapped, which is what keeps a reset measured in minutes instead of lead times.

Ropes as wear parts

The net is the part that takes the abuse, and it is the part designed to be changed. Four ropes, each on a removable pin, each replaceable on its own.

Nothing to re-pour

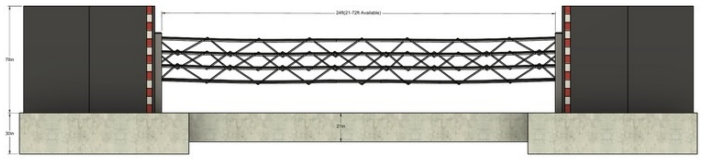
The concrete stays. No excavation, no cure time and no road closure to rebuild a foundation that did its job.

LOW MAINTENANCE BETWEEN EVENTS

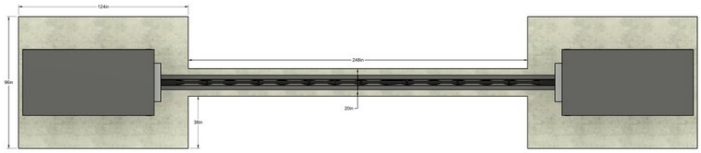
Standard inspection and service intervals, continuous duty cycle, and an operating range from −40 °F to +140 °F. Barrier heat is available where ice would otherwise decide when the net is available.

EIGHTEEN INCHES UNDER THE ROAD.

Across the lane the civil work is shallow: the net pan sits in a trench no deeper than eighteen inches from the road surface. The depth is at the shoulders, where the stanchion footings go — and the shoulders are usually where a site has room to dig.



Elevation — stanchion above grade, footing below, net pan across the lane.



Plan — stanchion footings at the shoulders, continuous pan between them.

FOUNDATION	
Roadway excavation	18″ maximum from road surface
Stanchion excavation	30″ maximum
Concrete	4,000 PSI minimum
Reinforcement	#6 bar, 12″ o.c. grid, ASTM A615 Gr 60
Welding	AWS D1.1, ER70S-6 electrodes
Galvanizing	Hot dip, 1.7 oz after fabrication
Not accepted	G-90 or cold galvanizing

SEQUENCE	
1	Excavate to grade at the stanchions and the pan line
2	Set both stanchions to the layout drawing
3	Install the pan between them and fasten at each joint
4	Place the rebar grid around each stanchion footing
5	Form and pour to 4,000 PSI, cure, strip and backfill
6	Hang the net, connect power and commission the controls

Shallow across the lane

The trench that carries the pan is the shallow part of the job, which is what keeps the traffic-bearing surface — and whatever runs under it — largely undisturbed.

Depth where there is room

The 30-inch excavation is at the shoulders — normally the part of an entry point with the most room to work and the fewest services running beneath it.

Engineered to the site

Foundation dimensions are engineered per project against the span, the soil and the layout. BSP issues the sealed package with the submittal.

Foundation dimensions vary with span, soil conditions and site layout, and are engineered per project. The figures above are the specification limits and the as-tested construction; they are not a substitute for the project foundation design.

WHERE THE LANE IS TOO WIDE TO BLOCK.

A net is specified where the opening is wide, the traffic is constant, and the barrier is going to be hit by an ordinary driver long before it is hit by a threat. It suits entry points that cannot be narrowed, roadways that cannot carry a center obstruction, and gates where an accidental impact would carry real consequences.

Deployed — net up across a controlled entry. Nothing stands in the lane between the stanchions.

Retracted — the same entry point, net down in the pan and flush with the surface. Traffic crosses it without slowing.

INDUSTRIES & FACILITIES SERVED

- Entry control points & ACPs
- Military installations & bases
- Federal & agency facilities
- Federal law-enforcement facilities
- Airports & transportation hubs
- Data centers & network facilities
- Ports, rail & logistics yards
- LNG & energy infrastructure
- Wide undivided roadways
- Reversible & contraflow lanes
- Embassies & diplomatic posts
- Corporate & institutional campuses

SPECIFIED & INSTALLED FOR

BSP perimeter systems protect facilities for the U.S. Army Corps of Engineers, NAVFAC, the U.S. Air Force and federal agencies, alongside commercial operators in data-center, energy and logistics infrastructure. Named references are available under NDA for qualified projects.

THE BARRIER YOU CAN PUT ON A PUBLIC ROAD

Entry points on public frontage are used by people who are not paying attention. A less-than-lethal design is what lets a rated barrier go somewhere a wedge would be difficult to justify — without giving up the M50 rating that put it on the list.

SITE ASSESSMENT

BSP provides free site assessments. Our engineering team reviews the opening width, approach, traffic and power before specifying span, actuation and controls.

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blacksp.com/contact

SPECIFICATIONS & STANDARDS.

SYSTEM	
Product	Defender Net Barrier, AVBD 651
Crash rating	ASTM F2656-15, M50 P2
Tested spans	21′ 3½″ and 72′
Test reports	Calspan BR0001 · BR0015
Penetration	6.7 ft at 21′ · 19.6 ft at 72′
Clear span range	21′ 3½″ to 72′
Lanes covered	Up to six undivided
Direction	Bi-directional
Net	4 × 2″ synthetic rope, 10″ spacing
Rope strength	380,000 lb break, each
Net weave	½″ rope, cross-woven
Net covering	Abrasion-resistant jacket, UV stable
Energy absorbers	Four each end, eight total, reusable
Stanchions	Galvanized structural steel
Galvanizing	Hot dip, 1.7 oz after fabrication
Emergency deploy	Under 2 seconds
Actuation	Manual, hydraulic, electro-mechanical
Power	120 / 240 V AC
Ambient range	−40 °F to +140 °F
Enclosures	IP66
Duty cycle	Continuous
Reset after impact	From approximately 30 minutes
Warranty	1 year parts · 5 years labor
Origin	Manufactured in the United States

REFERENCE STANDARDS

ASTM F2656	Vehicle crash testing of perimeter barriers
ASTM A123	Zinc coating, hot-dip galvanized
AWS D1.1	Structural welding
Buy American	Compliant

SECTION 34 71 13.16
VEHICLE CRASH BARRIER — NET

PART 2 — PRODUCTS

2.01 MANUFACTURER
The net vehicle barrier shall be the Defender Net Barrier, AVBD 651, manufactured by Black Security Products, LLC, Houston, Texas. Clear span [___] ft.

2.02 PERFORMANCE
A. The barrier shall be crash tested to ASTM F2656 at the M50 condition designation and achieve a P2 penetration rating or better.
B. The as-tested configuration shall be listed in the Active Net section of the DoD Anti-Ram Vehicle Barrier List maintained by the USACE Protective Design Center.
C. The listed configuration shall carry no demonstrated-characteristic note in Appendix A of that list, and shall be subject to no Army or Air Force use restriction.
D. The barrier shall be crash tested at not fewer than two spans, and interpolation between the tested spans shall be permitted by the list.
E. The barrier shall arrest the vehicle from either direction of travel.

2.03 CONSTRUCTION
A. The net shall comprise four horizontal synthetic ropes with a cross-woven web and an abrasion-resistant outer covering.
B. Energy absorption devices shall be provided at each anchor stanchion and shall be reusable following an impact event.
C. Horizontal ropes shall terminate on removable pins to permit individual replacement.
D. Steel shall be hot-dip galvanized to 1.7 oz after fabrication. G-90 and cold galvanizing are not approved equals.

2.04 OPERATION
A. Emergency deployment shall be complete in under two seconds.
B. The system shall be re-settable following a rated impact without replacement of the stanchions, foundation or energy absorption devices.

PROCUREMENT

CAGE	7MT82
DUNS	83-888-8670
NAICS	339999
CSI section	34 71 13.16
Product code	AVBD 651
Test reports	BR0001 · BR0015
Origin	Made in the USA

ENGINEERING SUPPORT

Submittal drawings, CAD, O&M manual, both Calspan reports and sealed foundation design on request. BSP engineering reviews the opening, the approach and the controls before the package is issued.

BLACK SECURITY PRODUCTS

STOPS THE TRUCK. SPARES THE DRIVER.

Black Security Products designs and manufactures high-security perimeter protection systems for military installations, government facilities, data centers, utilities and critical infrastructure worldwide — with an emphasis on anti-terrorism and force protection.

PERIMETER SECURITY PRODUCT FAMILY

ACTIVE VEHICLE BARRIERS

Shallow Wedge M50 P1 — AVBD 452
Wedge Barrier M50 P1 — AVBD 451
M50 Drop Arm — AVBD 551/552
M30 P1 Drop Arm — AVBD 531
Defender Net Barrier — AVBD 651
Bi-Folding Speed Gate — AVBD 210
Anti-Ram Crash Gates — AVBD 230/250

PASSIVE VEHICLE BARRIERS

Drill-and-Set Bollard — AVBD 331
Crash-Rated Bollards — AVBD 300
Cable Barrier M30 — AVBD 131/132
Cable Barrier M50 — AVBD 151/152
Rapid Deployment MPPD — AVBD 700

SECURITY FENCING

SecurePale™ Palisade — AVBD 1101
SecureMesh™ — AVBD 1001
SecureMesh™ Integrated PVB — AVBD 1002
SecureMesh™ Delay — AVBD 1003
ENC Non-Conductive — AVBD 1200
Ballistic Rated Fence — AVBD 1300

HEADQUARTERS

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PROCUREMENT

CAGE 7MT82
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SECURITY THROUGH INNOVATION