



AIR · CS-120

THE STOOP. POWERED TO CLOSE THE TURN.

Goose's launch chain, plus the power Goose leaves out — a tail motor and bow-thruster ring for mid-flight correction.

CUED INTERCEPT · COURSE CORRECTION · PREMIUM TIER

PATENT PENDING

EXPORT-CONTROLLED — INTERNATIONAL TRANSFER SUBJECT TO CANADIAN GOVERNMENT PERMITS

POWERED KINETIC CARRIER — NO WARHEAD, NO FUZE, NO ENERGETIC MATERIAL

13 KG ALL-UP ROUND MASS	Ø101 MM BORE · AIRFRAME OD	~74 M/S MUZZLE EXIT VELOCITY	0 ENERGETIC MATERIALS ABOARD — KINETIC CARRIER
---	--	--	--

OVERVIEW

THE POWERED TIER OF THE SAME FAMILY. BUILT TO CHASE.

Part of the 4-system Air line — shares its envelope and doctrine with Goose, Encapsulator, Matrix.

13 KG ALL-UP ROUND MASS	Ø101 MM BORE · AIRFRAME OD	~74 M/S MUZZLE EXIT VELOCITY	0 ENERGETIC MATERIALS ABOARD — KINETIC CARRIER
---	--	--	--

Gyrfalcon CS-120 is the Air family's premium interceptor — Tier 2, the stoop. It rides the same class of pneumatic launch chain as Goose, but it does not stay ballistic after the muzzle: a tail sustain motor holds it at cruise speed and a 4-axis bow-thruster ring bends its path toward a target that has already moved. Goose throws a salvo. Gyrfalcon throws a shot that chases.

The two rounds share a lineage on purpose. Both launch on the same class of shop-air chain, and both are kinetic carriers with nothing that detonates, deflagrates or fragments. What separates them is a single configuration ruling: Goose is fully unpowered by design — no battery, no motor, no bow-thruster ring, nothing aboard to jam. Every ounce of that powered-flight hardware was moved to Gyrfalcon instead of being banned from the family, and this round is where it is drawn as real hardware rather than a ghosted line item on someone else's sheet.

That makes Gyrfalcon the family's first round with a genuine electrical and mechanical interior — a flight computer, a shock-potted battery, four ring-mounted motor/fan units, an optical-fibre spool. All of it exists to answer one question a purely ballistic round cannot: what happens when the target turns after the shot is already away. The answer is premium-tier correction, reserved for cued intercepts worth the extra hardware — never a replacement for Goose's depth, only its complement.

THE CLAIM

GOOSE IS THE SALVO. GYRFALCON IS THE SHOT THAT CHASES.

Depth and precision are different jobs, and the family builds a different round for each rather than compromising one round to do both. Gyrfalcon spends mass and electronics so the round itself can correct — the premium a buyer pays only when a ballistic shot will not converge.

HOW IT WORKS

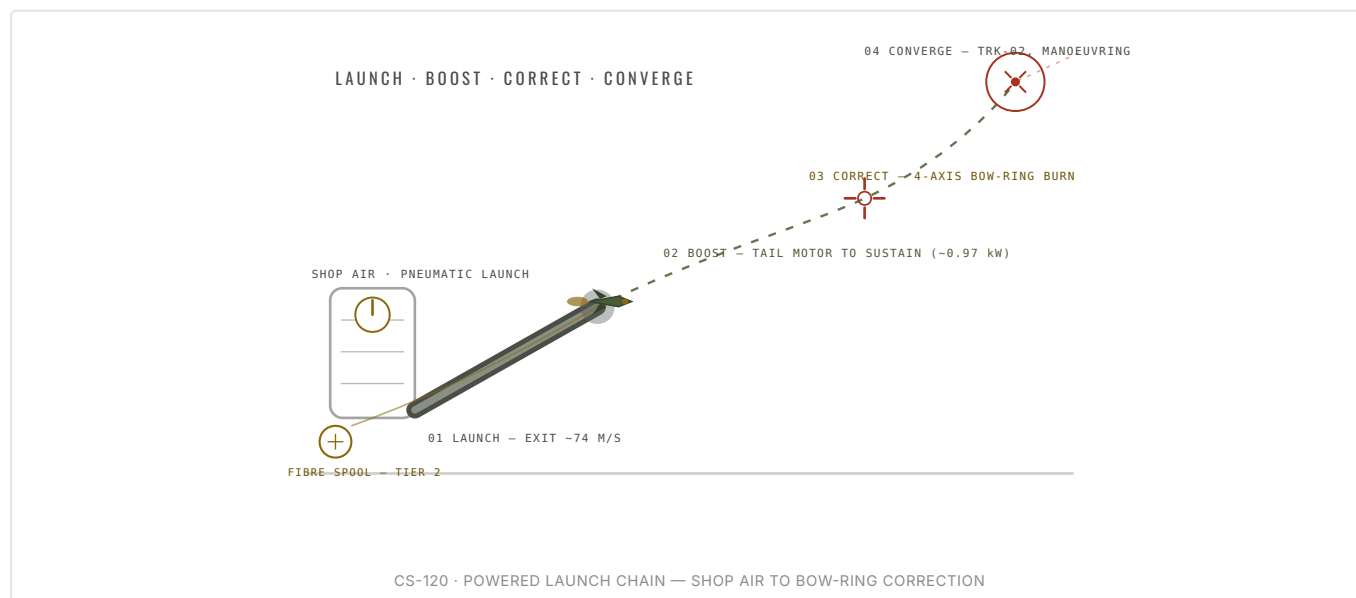
MECHANISM

LAUNCH, BOOST, CORRECT, CONVERGE

Four phases, and only the first is shared with Goose. Shop air fires the round from rest to an exit speed of ~ 74 m/s (~ 268 km/h) — slower than Goose's ~ 189 m/s, because a heavier round drawing on the same delivered energy leaves the tube at lower velocity. That trade is the whole design: everything downstream of the muzzle depends on it.

Clear of the tube, a folded propeller deploys from the tail and the sustain motor spins up — a ~ 1 kW-class electric drive holding the round at cruise for the length of the engagement, so drag is paid by the motor instead of bleeding off as ballistic decay. Four adjustable trim fins provide baseline steering, but at this speed they carry a fraction of the authority they would on a faster round. The 4-axis bow-thruster ring is what actually chases the turn: four motor/fan units at the nose apply pitch, yaw, roll and trim thrust independent of airspeed, cued down the trailing optical fibre by an operator in the loop. Where the target was is not where the round is aimed; where the target is now, is.

The arithmetic is why the family splits into two rounds. On a shared-energy launcher, exit velocity falls with the square root of mass, and sustain power falls roughly with the cube of velocity — powering Goose's 1.6 kg, ~ 189 m/s round would demand ~ 12.5 kW and a battery heavier than the round itself, while Gyr Falcon's 13 kg, ~ 74 m/s round needs ~ 0.97 kW and a ~ 0.6 kg pack, under five percent of the round. The same trade buys the family's gentlest launch — ~ 94 g average over the stroke, against the ~ 600 g Goose is built to survive — so the electronics-rich round gets the softest ride, on purpose. The margin left in the mission energy budget also carries a sized dash option: roughly $+20$ m/s above cruise for ~ 37 kJ of electrical energy, about double the instantaneous draw — a design option, not the baseline flight profile.



SPECIFICATIONS

CAPABILITIES & SPECIFICATIONS

GYRFALCON CS-120

DIMENSIONS & MASS		PERFORMANCE	
All-up round mass	13 kg	Muzzle exit velocity	~74 m/s (~268 km/h)
Bore / airframe OD	Ø101 mm — see bore note below	Delivered muzzle energy	~36 kJ
Overall length	~1.1–1.4 m	Launch-tube stroke	~3.0 m class
Fineness ratio (L/D)	~11–13	Launch acceleration	~94 g, average over stroke — the family's gentlest (Goose: ~600 g)
Configuration	Tube-launched, powered premium interceptor round	Launch-stroke duration	~81 ms
		Powered reach	~2.2 km over a 30 s sustain leg
		Dash option	+~20 m/s above cruise for ~37 kJ electrical — roughly double the instantaneous draw
LAUNCH & GUIDANCE		PAYLOAD & EFFECT	
Launch method	Pneumatic accumulator on shop air	Nose — base	Inert kinetic mass — collision alone, no onboard decision to defeat the target
Sustain	Tail motor with folded propeller — ~1 kW-class electric drive	Nose — capture	Capture nose, shared with Encapsulator and Matrix hardware
Correction	4-axis bow-thruster ring — pitch, yaw, roll, trim; airspeed-independent authority	Carrier-nose allowance	2.6 kg, common to both noses
Trim / baseline steering	4× adjustable fins	Energetic material	None — no warhead, no fuze, no primer, no propellant
Guidance tier	Tier 2 fibre-guided, operator in the loop (primary) · Tier 1 preset (degraded mode) · Tier 3 EO/IR seeker (partner-dependent, counsel-first)		
MATERIALS & CONSTRUCTION		POWER & ENERGY	
Body / airframe	GF-nylon sectioned mouldings — 4.2 kg structural allocation	Sustain power at cruise	~0.97 kW
Interior	Flight computer · shock-potted battery · four ring-mounted motor/fan units · optical-fibre spool	30 s sustain energy	~29 kJ · 8.1 Wh electrical
Tooling	Dies cut in Canadian Shield's own 5-axis shop	Mission energy budget	~1.3 kW peak · ~34 kJ · ~9.4 Wh total
		Battery pack	≥65 Wh · ~0.6 kg, rate-sized — ~7× mission-energy margin
COMPLIANCE			
Patent status	Patent pending		
Export control	Export-controlled — international transfer subject to Canadian government permits; export posture is counsel-first		
Munitions classification	Carrier, not a munition — non-explosive; trigger signals actuate mechanical release only		
Powered-flight scope	Scoped to this round — Goose CS-110 carries no battery, motor, ring or receiver		

LAUNCH ACCELERATION IS STATED AS AN AVERAGE OVER THE LAUNCH-TUBE STROKE. BORE NOTE: GYRFALCON'S DRAWING PACKAGE SPECIFIES A Ø101 MM BORE — WIDER THAN THE Ø90 MM TUBE GOOSE FIRES FROM. THE TWO ROUNDS SHARE LAUNCH-CHAIN PHYSICS AND DOCTRINE, NOT A BARREL; WHETHER A COMMON BORE EVER CLOSES THAT GAP IS AN OPEN DESIGN ITEM, AND THIS PAGE DOES NOT CLAIM ONE.

THE TRADES, STATED

DEPTH AT COST. PRECISION WHERE COST IS WORTH IT.

The family runs two tiers on purpose, not by accident. Goose is Tier 1 — a ballistic swarm bought deep because it is cheap, unpowered, and has nothing aboard for a jammer to find. Gyr Falcon is Tier 2 — the premium round for the cued intercept a purely ballistic shot will not converge on: a target that manoeuvres between the decision to fire and the moment of impact.

The link stays doctrine-consistent even with power added. Tier 2 fibre is Gyr Falcon's primary guidance, not a fallback — command steering over trailing glass, unjammable by construction, with a human in the loop for every correction. Tier 1 preset remains the degraded, safe-fail mode if the fibre is lost. Tier 3 — an EO/IR seeker for fully autonomous correction — stays partner-dependent and counsel-first on every platform in the family, Gyr Falcon included; it is never offered ahead of that gate.

Manufacturing follows the same sovereign path as the rest of the fleet: GF-nylon sectioned mouldings on Canadian Shield's own 5-axis dies, the same tooling that lets the Forward Manufacturing Cell put a magazine on an allied nation's own soil. A premium round still moulds cheaper than it flies, and the die shop that cuts Goose's tooling cuts Gyr Falcon's too.

FAMILY CONTEXT

TWO TIERS. ONE MAGAZINE LOGIC.

Goose buys the volume that makes a swarm affordable to defeat in numbers; Gyr Falcon buys the correction that closes the gap a ballistic round leaves open. Encapsulator and Matrix supply the capture tier on the same doctrine; Raven, Owl, Loon and Kestrel round out the family as electric aircraft. One no-radio thesis, seven jobs.

DEPLOYMENT

A CUED INTERCEPT, WALKED THROUGH.

One engagement, walked end to end — illustrative of how the round is used, not a mission record.

01 · CUE

A TARGET WORTH THE PREMIUM ROUND

The round arrives sealed and inert, is chambered, and the fibre spool is seated — no arming step exists to skip, because none exists at all. Fire control — owned capability, built in-house — hands over a track that is manoeuvring, or expected to by the time a ballistic shot arrives. That judgment is what selects Gyr Falcon over Goose.

02 · LAUNCH & CORRECT

SHOP AIR OUT, BOW-RING IN

The accumulator fires and the round exits at ~74 m/s, the folded propeller deploying clear of the muzzle as the tail motor spins up to cruise. An operator on the fibre calls corrections; the 4-axis bow-thruster ring answers with pitch, yaw, roll and trim thrust independent of airspeed — authority the fins alone cannot supply at this speed.

03 · IMPACT & ACCOUNT

ONE PREMIUM SHOT, LOGGED

Convergence ends the engagement by collision alone in the baseline configuration, or by a capture nose shared with Encapsulator hardware where an intact recovery is worth the closing-speed risk. Either way, nothing detonates. A spent round is logged as a premium shot against a track that earned it — the magazine's depth still lives in Goose.

THE FAMILY

RELATED SYSTEMS

CS-110 · LEAD ROUND

GOOSE

Kinetic slug nose, fully unpowered — the round built to be bought in numbers.

CS-111 · CAPTURE NOSE

ENCAPSULATOR

Goose's round envelope and tube, with a capture nose for a controlled take-down.

CS-112 · LAST METRES

MATRIX

A hand-launched tethered net for the final few metres — the capture tier's close-in tool.

Gyrfalcon CS-120 · patent pending · export-controlled — international transfer requires Canadian government permits; export posture is counsel-first. A powered kinetic carrier — no warhead, no fuze, no primer, no propellant, no energetic material anywhere in the round or any nose variant; trigger signals actuate mechanical release only. The tail sustain motor, 4-axis bow-thruster ring and battery are scoped to this platform only — Goose CS-110 carries none of it. Gyrfalcon's drawing package specifies a Ø101 mm bore, wider than the Ø90 mm tube Goose fires from — the two rounds share launch-chain physics and doctrine, not a barrel.



THE STOOP. POWERED TO CLOSE THE TURN.

GYRFALCON · AIR · CS-120

Two tiers. One magazine logic.

01 REQUEST A TECHNICAL EXCHANGE

A working session with engineering, not sales — bring your engagement problem, we bring the mechanism.

02 REQUEST THE AIR FAMILY DATA PACK

Drawings, tolerances and test basis for Gyr Falcon and its siblings, gated behind export screening.

03 DISCUSS A TRIAL QUANTITY

Tell us end-user, jurisdiction, quantity band and timeline — we respond against your program, not a price list.

SALES

sales@cdnshield.ca

GENERAL

info@cdnshield.ca

WEB

cdnshield.ca

Direct lines, named points of contact and facility details are shared with qualified programs following screening — not withheld, sequenced.

Canadian Shield is a defence and industrial drone company, backed by SIG: four-domain uncrewed systems built for jammed, GPS-denied environments — no-radio by design, manufactured for cost and salvo depth.

Gyr Falcon CS-120

Gyr Falcon CS-120 · patent pending · export-controlled — international transfer requires Canadian government permits; export posture is counsel-first. A powered kinetic carrier — no warhead, no fuze, no primer, no propellant, no energetic material anywhere in the round or any nose variant; trigger signals actuate mechanical release only. The tail sustain motor, 4-axis bow-thruster ring and battery are scoped to this platform only — Goose CS-110 carries none of it. Gyr Falcon's drawing package specifies a Ø101 mm bore, wider than the Ø90 mm tube Goose fires from — the two rounds share launch-chain physics and doctrine, not a barrel.

Product specification R1.0 · 2026-08-15 · © Canadian Shield, a division of SIG (Sustainable Infrastructure Group).