EON UNIVERSAL

The Living Library

Industrial 3D knowledge that scales to reality —
built by class, grown by encounter.

Medical · Aerospace MRO · Mining · Oil & Gas

EON AI Ventures

THE PROBLEM

You cannot pre-build reality

Every industrial site is assembled from the same equipment classes — but almost never the same **exact units**. Each class exists in dozens of makes, hundreds of models, thousands of configurations.

Traditional 3D libraries try to enumerate the world up front — and fail twice:

- **they never finish** (reality is unbounded), and
- what they ship rarely matches the unit in front of the worker.

11 / 12

of the parts on one real training skid differed from the generic library model — correct class, different flavor.

makes × models × sizes × options
= effectively infinite variants

The verified result from EON's own skid training rig, 2026.

THE INSIGHT

Training and twin-building are two different jobs

Teach the class

“What is a syringe pump and how does it work?”

- ~50 families per industry
- Photorealistic archetypes, real scale
- Labeled controls, cutaways, procedures
- Built once, ships to every customer

Mirror the facility

“This exact unit, on this exact site.”

- Specific makes & models — flavors
- Generated on demand from photos
- Delivered in minutes, same day
- Human-blessed before it ships

Training is taught by class, not by serial number. Twins need the exact unit. We do both — with different machinery.

THE VOCABULARY

Five levels, from industry to part

WING
one industry = one library, never mixed
Medical · Aerospace MRO · Mining · Oil & Gas

FAMILY GROUP
10–12 shelves per wing
“Infusion & Fluid Delivery” · “Landing Gear (ATA 32)”

FAMILY
photoreal archetype, real scale
“Syringe Infusion Pump” — the class we BUILD (~50 per wing)

FLAVOR
captured by Recognition in the field
“B. Braun Perfusor Space” — made ON DEMAND, same day

PART
7 sub-parts per family
drive screw · syringe clamp · display — named & labeled

The six-layer intelligence — what it is · how it works · anatomy · operate · make-safe · faults & procedures — lives at the FAMILY level. Flavors inherit ALL of it, instantly. **When Recognition captures YOUR specific machine, it isn’t a dumb 3-D scan — it’s born already knowing everything its family knows.**

THE MUSEUM

Four wings — one shared intelligence

Oil & Gas

343 components built

pumps · valves · separators · pumpjacks · frac trees

Mining

50 families built

excavators · draglines · crushers · conveyors

Medical

Built live

infusion · ventilators · imaging · surgical · lab

Aerospace MRO

Built

turbofans · landing gear · hydraulics · avionics (ATA)

Separate shelves, one schema. Every wing shares the same six-layer intelligence record, ports, placement and scale system — so every industry inherits the viewer, procedures and competency engine for free. But a ventilator never sits next to a dragline: wings are never mixed.

INDUSTRY-NATIVE BY DESIGN

Same schema — your industry's safety language

Oil & Gas

Make-safe = LOTO isolation chains — electrical, process, stored energy, verify. The language of the permit office.

Medical

Make-safe = electrical isolation, medical gas supply, infection control. A hospital never sees a tag-out chain.

Aerospace MRO

Work is organized as ATA-chapter task cards — the hangar's own numbering, not a generic checklist.

One intelligence schema under the hood — but every wing speaks its own industry's safety and procedure language natively. (Mining follows the same rule: isolation and permit-to-work in mining terms.)

THE METHOD

How a family gets built

1 · Spec

50 classes + 7 parts each, defined in the BuildPack

2 · Views

AI paints clean front + sides — same object, all angles

3 · 3D build

3D from picturw multiview reconstruction, split into parts

4 · True scale

catalog lookup → real metres, baked in

5 · HD surface

high-res textures + viewer detail layer

6 · Cutaway

see-inside geometry for teaching

7 · Anchors

pipe/port connection points for the builder

8 · Intelligence

labels, function, safety — Smart Components

Steps 1–7: EON Living Library (geometry lane) · Step 8: EON Smart Components (intelligence lane)

THE FIVE HANDS

Who does what

Living Library

builds the families — geometry, scale, cutaways, anchors

Smart Components

makes them smart — six-layer intelligence, labels, procedures

Recognition

captures reality — identifies equipment, spawns flavors

Configurator

assembles facilities — places parts, routes the pipes

Competency

trains & scores people — courses, assessments, records

Five specialized systems, one contract between them — each hand does its job and passes a richer object to the next.

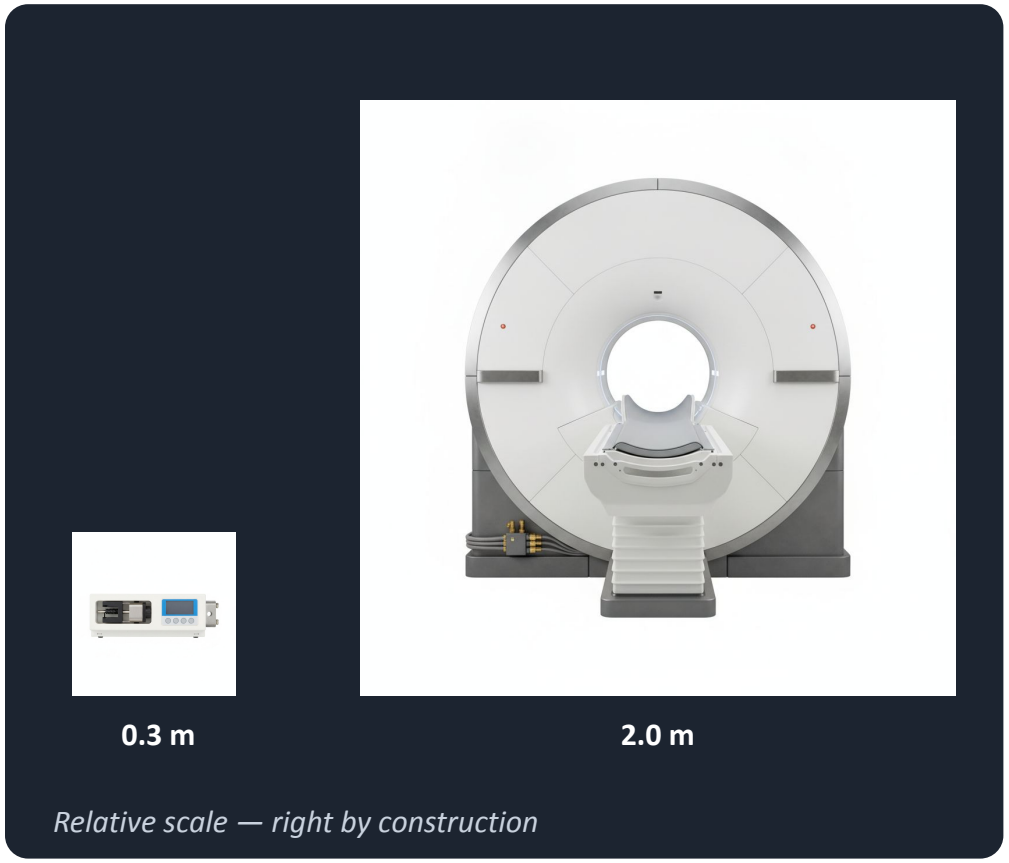
SCALE IS TRUTH

Every model carries its real-world size

3D generators don’t know how big anything is — a syringe pump and an MRI come out the same size. We fix that at the source:

- automated catalog lookup finds each class’s real dimensions (sourced, in metres)
- the size is baked into the model — dimensions_m travels with it
- the app scales from the record — so relative size is right automatically

Live example — Syringe Infusion Pump: lookup returned 0.31 × 0.12 × 0.19 m, citing a real reference product. Correct on the first try.



Relative scale — right by construction

RIGHT FIDELITY FOR THE JOB

Three levels of training, two kinds of models

RECOGNIZE

“That’s a syringe pump.”

Archetype is enough

UNDERSTAND

“Here’s how it works inside.”

Archetype + cutaway is enough

OPERATE

“Press bolus, set the rate.”

Needs the exact flavor — generated on demand

Archetypes are not bland: every family ships with the standard control set of its class — real buttons, live screens, correct labels — without copying any one brand. The exact brand model arrives as a flavor, only where operate-level training demands it.

GROWING BY ENCOUNTER

Recognition catches what reality serves

Photo
worker snaps the unit

→

Recognize
AI matches it to a family

→

No exact match?
flagged as a new flavor

→

Generate
photo ⟶ 3D model, minutes

→

Human blessing
one approval gate

→

In the library
twin + training, same day

Real case — the Beast training rig: recognition scanned the skid, found a flow meter our library didn't have (a Coriolis type), generated it from a single field photo, and it was registered — geometry, parts, connection points — the same day. One human approved it. That is the library growing itself.

THE ECONOMICS

A different category of speed and cost

Days

to build a complete 50-family industry wing — photoreal, HD, cutaways, real scale

Minutes

to generate an on-demand flavor caught in the field — live the same day

1 week

to mirror a typical facility's specific equipment set (30–80 units)

Compare: a manually modeled, artist-built industrial 3D asset typically costs $500–$2,000 and takes days — per asset. Our pipeline builds a photoreal, part-separated, correctly-scaled family in under an hour, and an entire industry wing in days, at a fraction of traditional cost.

TRUST, ENGINEERED

The honesty system

Human blessing gate

AI output is a candidate, never truth. Nothing generated reaches any user — not the library, not a facility — until a person approves it in the viewer.

Fidelity marking

Every record declares itself: representative (built from specification) or verified (checked against the real unit). Part names come from the specification — nothing is fabricated.

Deterministic safety gate

Safety content is never statistically averaged. A make-safe step is either verified present and correct, or the record is flagged — a safety miss can never be averaged away.

For medical and aerospace buyers, this credibility story outsells photorealism.

PROOF, NOT PROMISES

The medical pilot — built in one afternoon

Syringe pump

0.31 m

Patient monitor

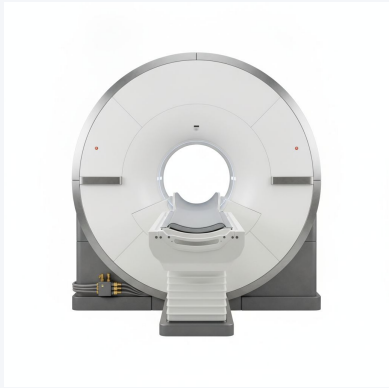
0.30 m

Defibrillator

0.32 m

ICU ventilator

1.35 m



MRI scanner

2.0 m

Five families, deliberately spanning 0.3 m to 2 m — AI-painted views, 3D-built in one afternoon, real scale looked up automatically. Each is blessed in the live product viewer before the remaining 45 are batched.

We built the museum.
Reality fills it.

EON Universal — The Living Library · Medical · Aerospace MRO · Mining · Oil & Gas

EON AI Ventures