

PARAMETRIC ASSEMBLIES FOR MECHANICAL ENGINEERING

Concepts in hours. Not in weeks.

Frame, drive, kinematics and guarding come out of parameters and recalculate the moment a requirement changes. Designers check variants and installation space in the browser before CAD time goes in — and hand finished components to the whole team.

01

Concept

Envelope, axes, strokes & loads

02

Variants

Drive, kinematics & attachments

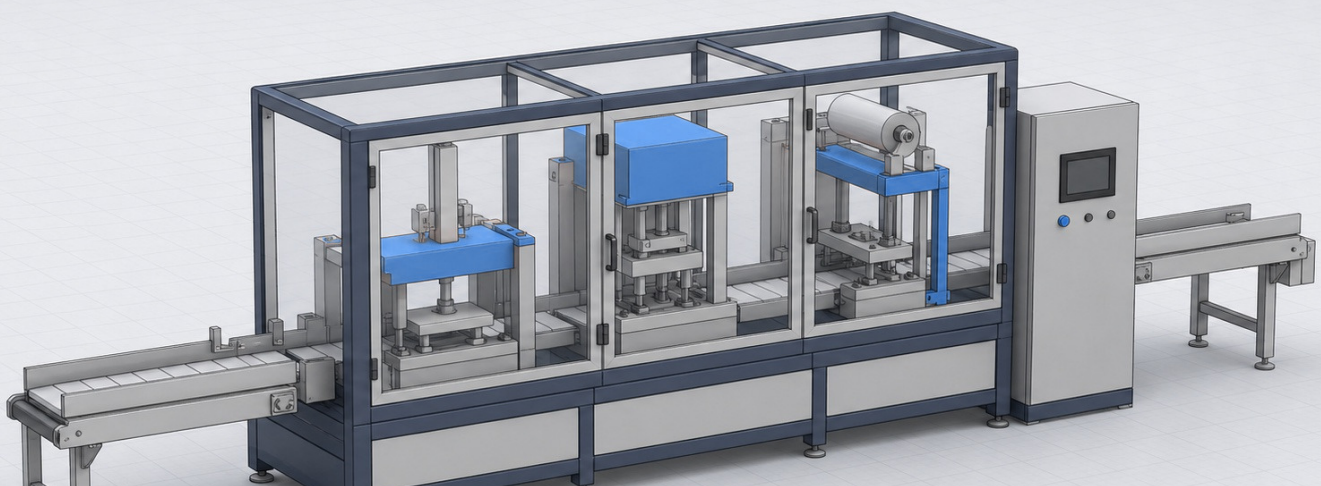
03

Handover

STEP, BOM & drawings

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FASTER MECHANICAL DESIGN



ASSEMBLY
PROCESS LINE

FRAME · STATIONS · GUARDING
ALL FROM ONE PARAMETER SET

FROM SPECIFICATION TO A CONCEPT THAT HOLDS

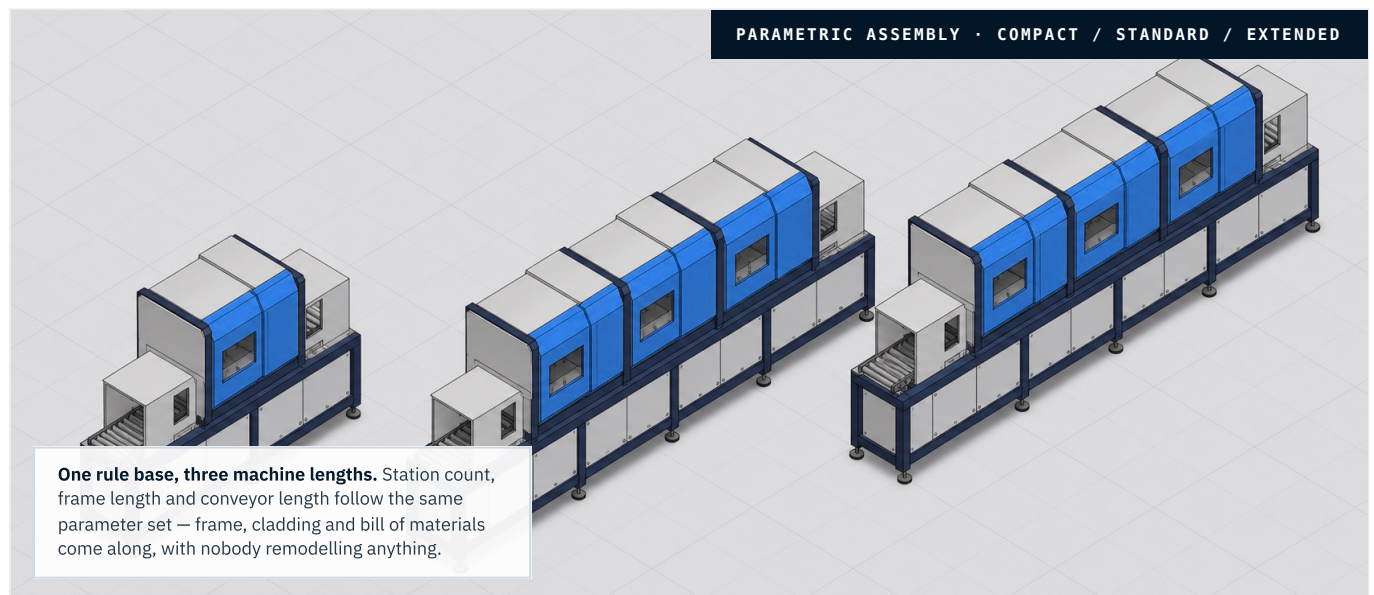
One model. From concept to handover.

In special-purpose machinery the expensive part sits at the start: concepts that get discarded cost CAD days. A parametric model calculates the next variant instead of redrawing it.

Envelope, axes, strokes and loads go in as parameters — the assembly follows from them, not the other way round. Dimensions, drives and attachments can be swept, and installation space and collisions show up immediately on the moving model. What finally goes into detailed design is not a sketch but a **checked variant with real geometry**.

Hours to the first moving concept instead of CAD weeks	5 public reference assemblies, live in the browser	mm real design dimensions — not an illustration	STEP bill of materials and drawing set off the same model
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THREE VERSIONS FROM ONE PARAMETER SET

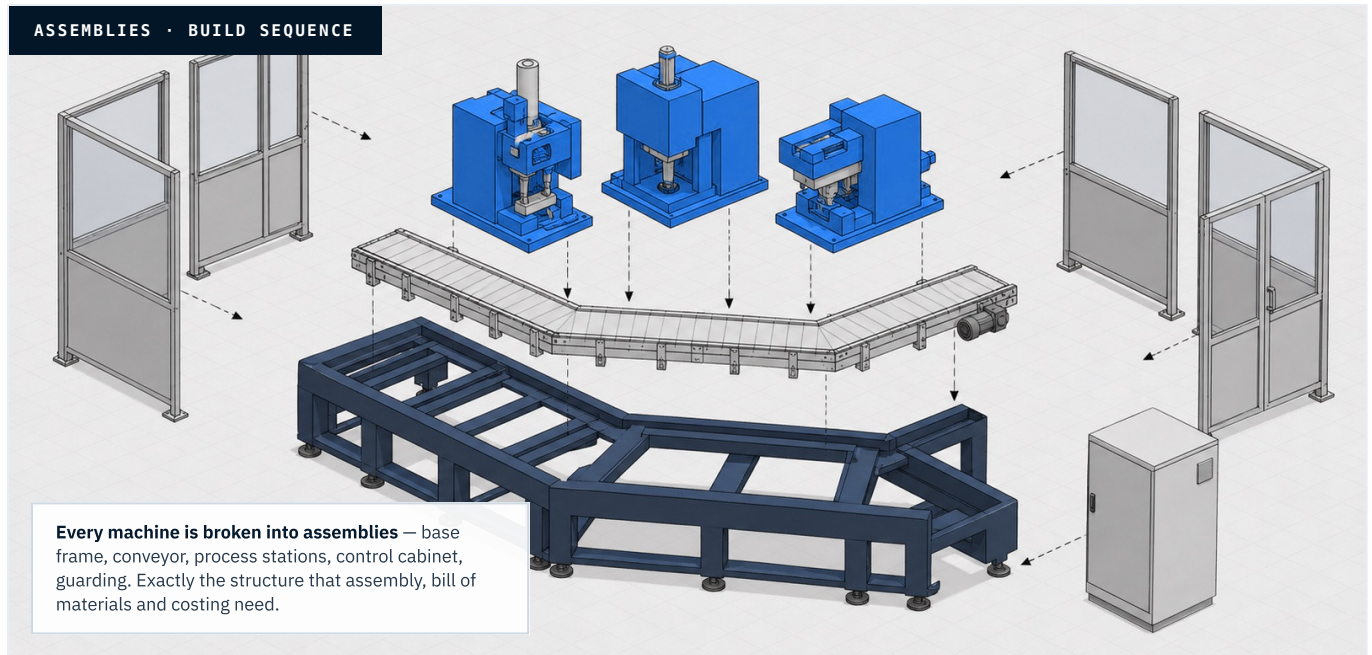


01 / SET UP THE CONCEPT Parameters, not sketches Envelope, axes, strokes and loads go in as parameters — the assembly follows from them, not the other way round.	02 / RUN THROUGH VARIANTS Space & collisions Dimensions, drives and attachments can be swept; installation space and collisions show up on the moving model.	03 / HAND OVER THE RESULT Data engineering can use The variant that holds goes into detailed design as STEP, bill of materials and a drawing set.
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02 / CAD KERNEL

Not a rendered mock-up. Real parametric geometry.

The confBuild CAD kernel recalculates the assembly from parameters and design rules — with real fillets, bores, standard parts and gear teeth. Not an image catalogue, but geometry that goes into manufacturing.



01

Deterministic

The same parameters reliably produce the same geometry. No random outcome, no manual rework — today's variant is still reproducible a year from now.

02

Assembly-aware

Parts and attachments stay connected through product rules. A changed envelope moves frame profiles, drive, cladding and interfaces in one go — not just the looks.

03

Technically usable

STEP, bill of materials and parameters feed CAD, ERP and manufacturing. One state for engineering, costing and work preparation instead of three separate tools.

04

Browser-native

Interactive 3D geometry with no local CAD install, no plug-in, no login hurdle. Runs on a laptop or tablet — a colleague, supplier or customer just clicks the link.

FROM PARAMETER TO MANUFACTURING DATA

Parameters

Envelope, strokes, loads

→ Rule base

Validity & dependencies

→ Assemblies

Frame, drive, guarding

→ 3D model

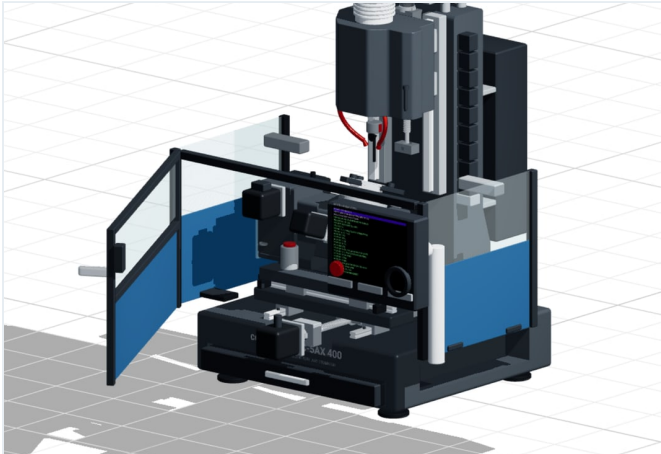
in the browser, with motion

→ Output

STEP, BOM, drawings

03 / EXAMPLES

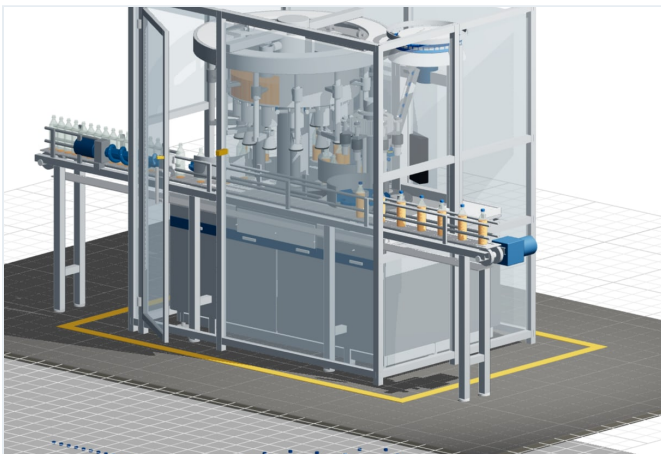
Five assemblies. Each built in hours.



01 MACHINE TOOL 5-axis machining centre

- Benchtop machine with a trunnion table: X, Y and Z, A swivel and C rotation driven live
- Bed 640–820 × 600–780 mm, column 260–360 mm
- A axis $\pm 110^\circ$, C axis 0–360°, trunnion 140–190 mm
- Tool $\varnothing$ 3–16 mm, stick-out 40–110 mm — workpiece and tool follow the configuration
- Enclosure door opens, the work area stays visible

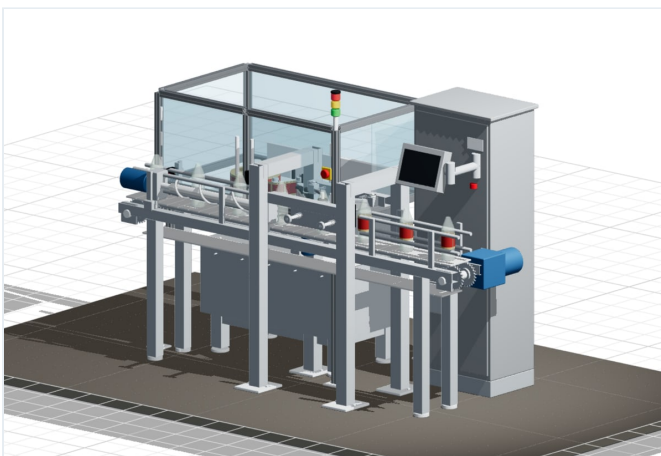
app.confbuild.com/p/maschinen-5achs-cnc ➤



02 FILLING TECHNOLOGY Rotary filling and capping monobloc

- Filling monobloc for bottled beverages, the cycle runs station by station
- 8–20 filling valves on a 700–1600 mm pitch circle
- Bottles $\varnothing$ 60–110 mm, height 180–400 mm
- Machine plate 900–1400 mm, conveyor 3.6–6.6 m
- Guarding and cladding removable — the interior stays inspectable

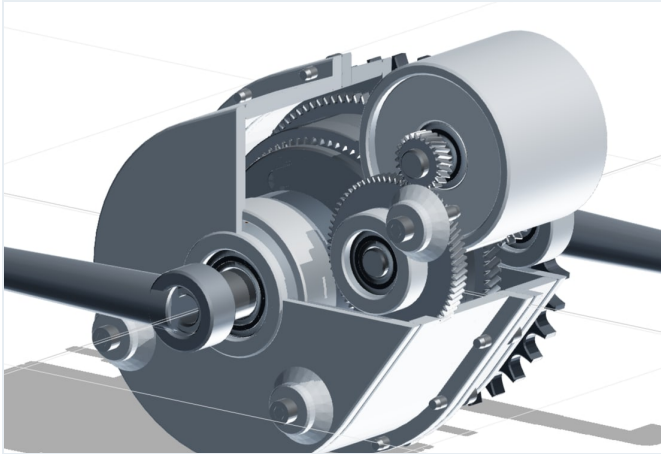
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03 PACKAGING TECHNOLOGY Bottle labelling machine

- Self-adhesive labeller on a hinged-belt conveyor, the labelling cycle runs as an animation
- Bottles $\varnothing$ 60–120 mm, height 150–400 mm
- Label height 40–180 mm, reel $\varnothing$ 200–400 mm
- Belt 1.8–3.6 m, working height 850–1150 mm
- Guarding and control cabinet can be switched off individually

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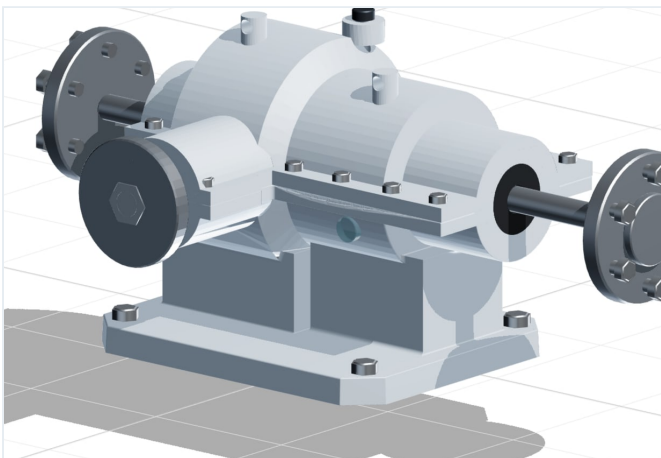


04 DRIVE TECHNOLOGY

E-MTB mid-drive with eCVT

- Power-split planetary set acting as a continuously variable gearbox
- Planetary module 1.1–1.35 mm, stator stack 22–30 mm
- Chainring 30–38 teeth, crank 160–180 mm
- Cadence 50–110 rpm, MG1 –200...+300 rpm — the ratio follows from them
- Housing can be shown as a section model, the unit drives into an exploded view

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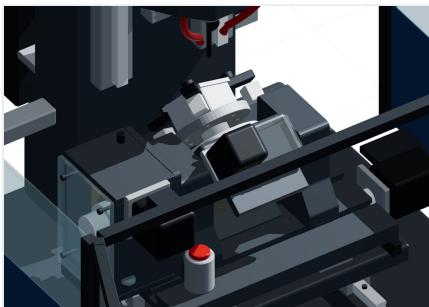
05 GEARBOX DESIGN

Bevel gear differential

- Pinion, crown wheel, spider gears and side gears as complete kinematics
- Input flange $\varnothing$ 130–200 mm, wheel flange $\varnothing$ 150–230 mm
- Axle shafts 340–540 mm, pinion speed 30–300 °/s
- Straight running, cornering with a 0–60 % speed split, a blocked wheel
- The housing opens at the press of a button

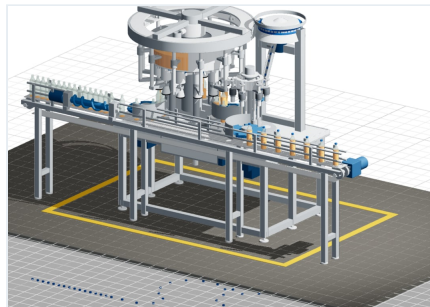
app.confbuild.com/p/maschinen-kegelrad-differential ➤

SAME ASSEMBLY, ANOTHER VIEW



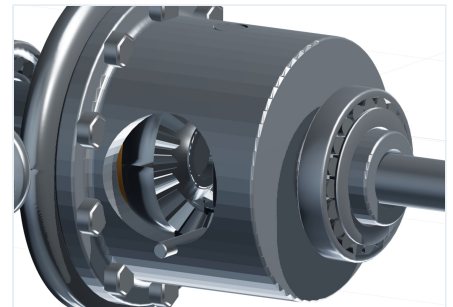
WORK AREA

Trunnion swivelled with workpiece and cutter — envelope and stick-out checked directly.



GUARDS OFF

Cladding removed: carousel, star wheels and conveyor stay inspectable.



BEVEL GEAR SET

Real tooth geometry instead of a symbol wheel — pinion, crown wheel, spider gears.

All five models come out of the same system. Your assembly is built exactly this way — with your profiles, your standard parts and your design rules.

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04 / CAPABILITIES

What the kernel can design.

An extract from the reference models already built. The scope is tailored to your assembly — profiles, standard parts and design rules come from your engineering.

Geometry & machining

- Solid bodies with real fillets and chamfers — not a painted-on edge look
- Bores, pockets, cut-outs and reliefs as real subtracted bodies
- Union and subtraction for cast and welded bodies
- Loft and sweep for ducts, hoppers, nozzles and piping
- Standard parts: bolts, nuts, washers and pins with matching hole patterns

Sheet metal & weldments

- Sheet metal parts with bends, bend radii and corner reliefs
- Embosses, extruded holes and cut-outs as patterns across the face
- Flat pattern with exact edges for blank preparation
- Weldments detected as connected contact clusters
- Standards-compliant weld symbols directly on the model

Drawings & MBD

- Drawing set by assembly: general arrangement plus one page per group
- Shop drawings per fabricated part with dimensions and parts list
- Geometric tolerances, datums and surface finishes on the 3D model
- Tolerances and fits on dimension chains, inspection dimension overview
- PDF export as vector — not as an image

Drive & gearing

- Involute gear teeth as geometry: spur, helical and internal ring gears
- Planetary stages with hub, keyway and circlip groove
- Racks, bevel gears, worms and worm wheels
- Rolling bearings, pulleys, sprockets, couplings, hinges
- Chain drives as duplex and triplex to DIN series

Pneumatics & automation

- Supply chain, valves, valve terminals, cylinders, grippers, vacuum
- Hoses are routed automatically between the ports
- Network check: missing supply and open ports are reported
- Define step sequences and run them as an animation
- Air consumption report and ISO 1219 circuit diagram

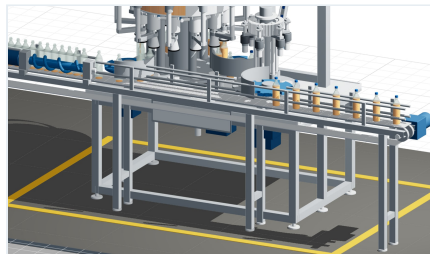
Checking & output

- Collision check: overlapping parts are marked in the model
- Kinematics: axes, strokes and cycles run as animations
- Exploded view and section view at the press of a button
- Bill of materials with bought-in parts, quantities and budget prices
- STEP export for handover into your CAD system



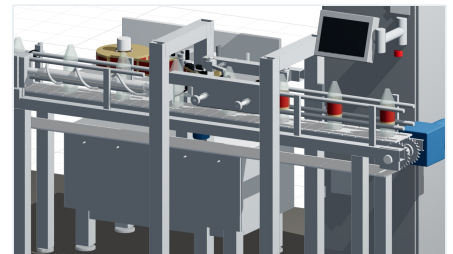
GEAR TEETH

Planetary set with real involute geometry, bearings and hub connection.



STATIONS

Filling stations with centring bells — count and pitch circle are parameters.



LABEL HEAD

Reel, peel edge and press-on unit as a designed assembly.

05 / BENEFITS

Design faster. Decide earlier.

Concept, coordination and manufacturing documents come off the same parametric model — from the first draft to handover.

01 ◇ Check concepts faster Installation space, kinematics and order of magnitude are settled on day one instead of after the first CAD week.	02 ↗ Variants without remodelling One parameter change produces the new version — including attachments and bill of materials.	03 ↘ Share components Colleagues, suppliers and customers open the component in the browser, with no CAD workstation.
04 ◎ Keep using the data STEP, BOM, drawings and parameters carry on into CAD, ERP and manufacturing.	05 ⊕ See collisions early Overlaps show up on the moving model — not first at assembly.	06 ≡ Grows with the product range New frame sizes, drives or options come in as rules — without a new tool.

06 / PROCESS

From specification to detailed design.

Four steps, one model: what goes in at step 01 as a parameter set leaves the process at step 04 as manufacturing data. Nothing in between is redrawn — only recalculated.

01 Requirement Envelope, axes, strokes and loads arrive as a parameter set instead of prose.	→ 02 Model The assembly is built from rules — with real geometry and running kinematics.	→ 03 Variants Versions are swept; installation space and collisions stand out immediately.	→ 04 Handover STEP, bill of materials and drawing set go into detailed design.
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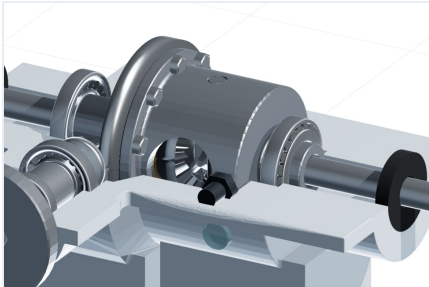
A checked concept before the first CAD hour is spent.

Feasibility, installation space and order of magnitude are settled — detailed design starts from solid ground instead of a sketch.

07 / FOCUSED REMOTE PILOT

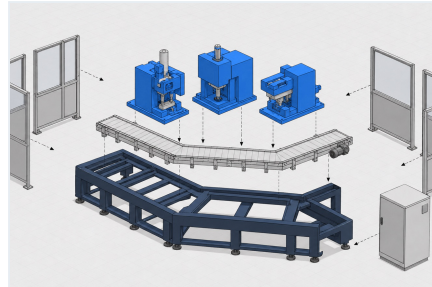
One part. Clear scope.

We start with one component from your range — the one that gets redrawn in variants over and over. You see a real model early, not at the end of a project plan.



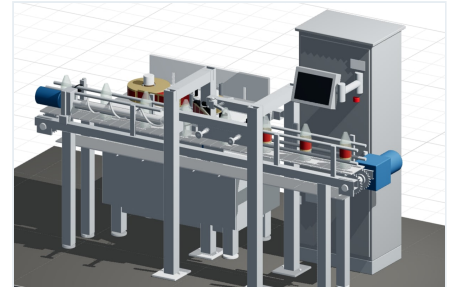
01 / PICK A PART FAMILY

We take a component that gets redrawn in variants over and over at your place.



02 / BUILD IT PARAMETRICALLY

Geometry, design rules and output are mapped as a focused prototype.



03 / SHARPEN IT IN DAILY USE

Your designers work with it; the rules get sharpened on real orders.

Built once. Usable by everyone.

A parametric component is available to every designer in the browser: enter your own dimensions, download the geometry, install it — no CAD licence and no maintained variant files.

08 / ADJACENT AREAS

One system. More product worlds.

The same parametric logic can power adjacent areas — from the machine's periphery to the surrounding plant.

01 / PNEUMATICS

Pneumatic assemblies

Valve terminals, cylinders, grippers and vacuum with automatically routed hoses and step sequences.

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02 / CONVEYING

Configure conveyor lines

Belts, curves, diverters and transfers as parametric line modules.

foerdertechnik.confbuild.com/en ➤

03 / MACHINE GUARDING

Make safety fencing plannable

Fence panels, doors, openings and post grids matched to the machine contour.

maschinenschutz.confbuild.com/en ➤

Arrange a first call

daniel@confbuild.com

In 20 minutes we find the part that gets redrawn most often at your company. Remote, directly with the developer.

See the examples live

machines.confbuild.com

Configure and move five public machine models directly in the browser — no login.