SOLMAN SOLUTIONS FOR MANUFACTURING

PRESENTATION



SOLMAN HUNGARY KFT. · DESIGN AND MANUFACTURING

FIXTURE DESIGN & MANUFACTURING

ENGINEERING SERVICES IN QUALITY MANAGEMENT, METROLOGY AND DESIGN & MANUFACTURING

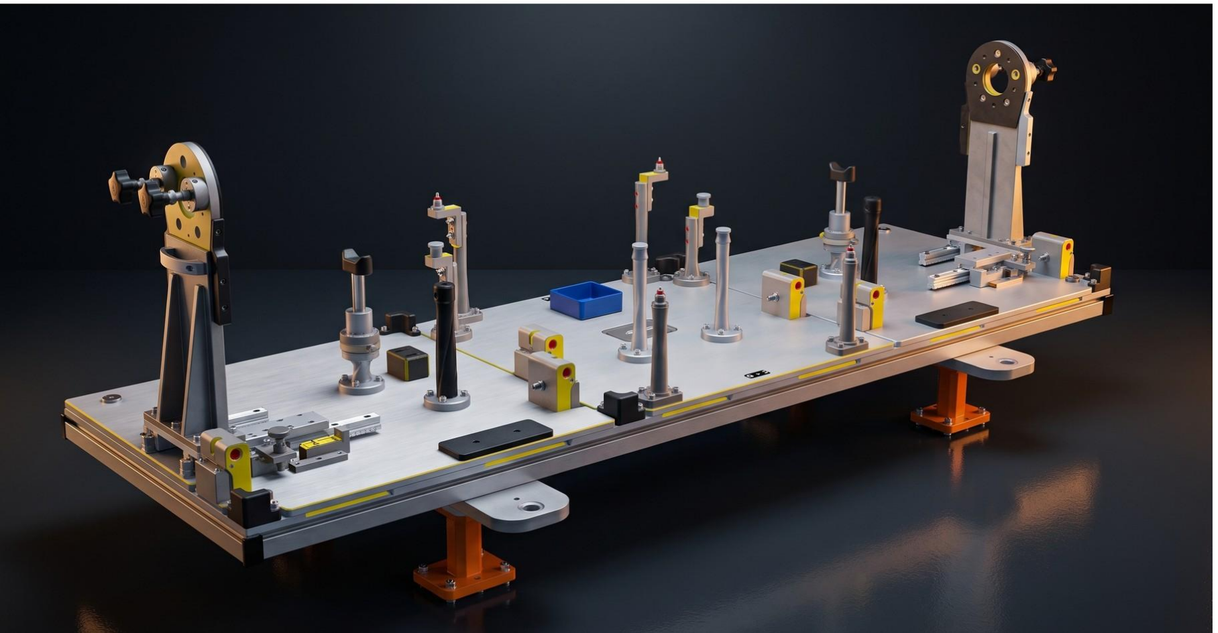
AUTOMOTIVE · AEROSPACE · DEFENCE

FIXTURES FROM ONE SOURCE

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FROM THE 3D MODEL TO THE MEASURED FIXTURE

We design and build DTI and checking fixtures, CMM fixtures, test benches and special machines for your part, based on its 3D model. Every finished fixture is measured in our own NAH-accredited calibration lab, so what reaches your line is proven to be accurate.

WHAT YOU GET

- Fast concept and 3D model from your part's CAD data
- Interactive, rotatable 3D design for approval
- Project schedule and deadlines that hold
- Manufacturing in 1, 2 or 3 shifts, weekends too
- Accredited measurement, annual calibration, maintenance
- Customer portal: every document and project status in one place

1–5
days to quotation

3
shift manufacturing

1
contact person

More information

OUR FIXTURE PORTFOLIO

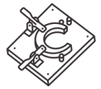
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01



DTI FIXTURES
dial-indicator checks at the line

02



CHECKING FIXTURES
RPS locating, many measuring points

03



CMM FIXTURES
for CMMs and measuring arms

04



ROTATING FIXTURES
several sides in one clamping

05



GO / NO-GO GAUGES
fast pass / fail decision

06



LARGE PARTS
bumpers, freeform surfaces

07



POKA-YOKE SYSTEMS
error-proof checks at the line

08



TEST BENCHES
with software, e.g. leak testing

09



SPECIAL MACHINES
cutting, deburring, custom builds

10



PRODUCTION CELLS
developed from the concept

11



ACCREDITED MEASUREMENT
NAH-2-0343/2023, with report

1–5 DAYS

to quotation,
up to 3-shift manufacturing

DTI FIXTURES

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CHECKED IN SECONDS

NO CMM NEEDED, RIGHT NEXT TO THE LINE

A DTI (Dial Test Indicator) fixture is a checking fixture with dial indicators: the part rests on the reference points defined in the drawing, and at each critical point a dial indicator or probe shows the deviation, so the operator sees in seconds whether the part is OK. Shown: our rear-lamp DTI fixture.

WHAT OUR DTI FIXTURES OFFER

- RPS locating as per drawing
- Guided probe at each point
- Analogue or digital indicators
- Setting master for zeroing
- Quick clamps, easy handling
- Marked, traceable points

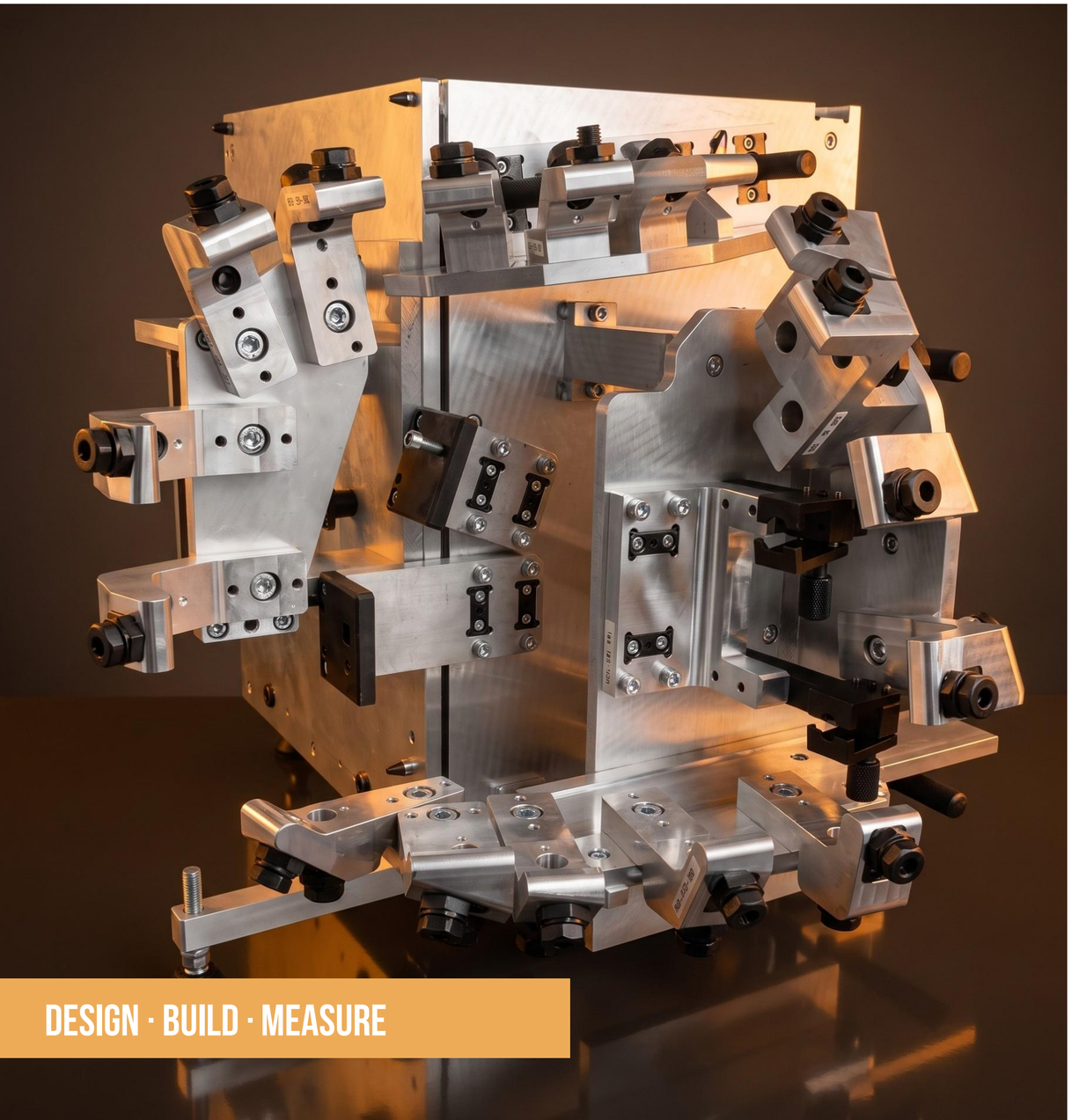
WHEN TO USE

- For frequent or 100% inspection in series production, with instant feedback to the line, also during ramp-up and PPAP.

More information

DTI: FROM DESIGN TO DIAL INDICATOR

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EVERY MEASURING POINT STARTS IN THE DRAWING

We design the DTI fixture from the part's 3D model and the measuring points in the customer drawing. You approve the concept on a rotatable 3D model, then we build, assemble and measure it in our accredited lab.

DESIGN AND BUILD

- Measuring plan from the drawing
- RPS / 3-2-1 locating
- Interactive 3D design for approval
- Manufacturing and assembly
- Set-up with the setting master
- Accredited measurement, report

WHAT YOU RECEIVE

- A finished, measured DTI fixture with an accredited report, the 3D model and the design documentation, of which we keep a backup.

More information

ACCREDITED MEASUREMENT

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NAH-2-0343/2023

PROVEN ACCURATE, NOT JUST DESIGNED TO BE

Our own calibration lab is accredited under NAH-2-0343/2023. We measure every finished fixture on a CMM or a measuring arm and issue an accredited report. We are the only lab in Hungary accredited to measure fixtures and holding devices with a measuring arm.

WHAT WE MEASURE

- Reference and locating points
- Position of measuring bushings
- Setting masters, master parts
- Contours and freeform surfaces
- Pins, holes, planes
- Fixtures from other makers, too

WHEN TO USE

- At handover and before PPAP, then annually; after repair or damage including correction, within 3 working days of the order.

More information

CHECKING FIXTURES AND CMM FIXTURES

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REPEATABLE CLAMPING

HELD EXACTLY AS IT SITS IN THE CAR

We clamp the part in its installed position on the reference points from the drawing, so the measurement is repeatable and shows the same result on the CMM, on the measuring arm or at the line.

TYPES

- Checking fixture
- CMM and measuring-arm fixture
- Go / no-go gauge
- Base-plate, modular design
- Quick clamps, guided pins
- For metal and plastic parts

WHEN TO USE

- At the ramp-up of a new part, for PPAP measurements, and whenever the result depends on how the part is held.

More information

GO / NO-GO GAUGES

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FAST DECISION AT THE LINE

PASS OR FAIL IN SECONDS

For bores, pins, slots and gaps we make plug and snap gauges to the tolerance zone on the drawing: the green GO end must fit, the red NO-GO end must not. The operator decides at the line, without measuring or evaluating.

FEATURES

- Plug, snap and custom gauges
- Hardened, ground gauging surfaces
- Green GO / red NO-GO marking
- Tolerance zone from the drawing
- Measured, with inspection report
- Remanufactured when worn

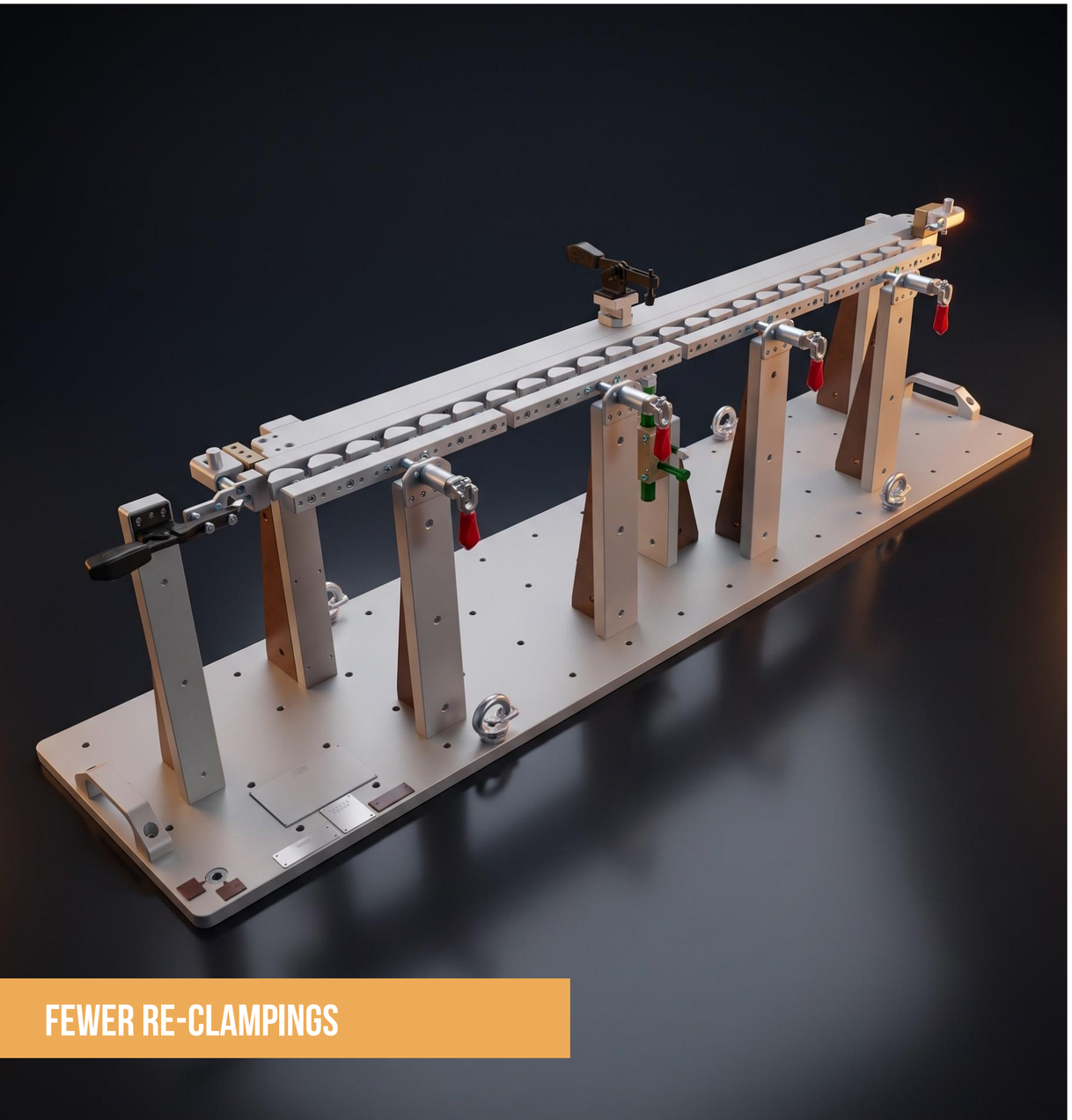
WHEN TO USE

- For high-volume 100% inspection at the production line, where a fast and unambiguous decision is needed.

More information

ROTATING AND CLAMPING FIXTURES FOR CMMS

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FEWER RE-CLAMPINGS

SEVERAL SIDES, ONE CLAMPING

For complex parts with wrap-around contours, a rotating fixture or one accessible from several sides makes the part measurable in a single clamping: fewer re-clampings, lower measurement uncertainty, shorter cycle time.

FEATURES

- Rotating holder
- Contour-following supports
- Colour-coded clamps
- Free access for the probe
- Rigid base plate, positioning
- Handles for moving

WHEN TO USE

- For series CMM measurement of lamps, covers and parts with wrap-around contours.

More information

LARGE PARTS: BUMPERS, FREEFORM

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FREEFORM INSPECTION

THE WHOLE FRONT END ON ONE FIXTURE

For bumpers, front-end modules and large plastic covers we design fixtures that simulate the installed position, with measuring stations for gap and flush, and for freeform inspection on a CMM or measuring arm.

FEATURES

- Simulated installed position
- Gap and flush stations
- Freeform checks on the CMM
- Rigid welded frame
- Quick clamps, support elements
- Prepared for arm measurement

WHEN TO USE

- For large, flexible plastic parts whose shape can only be measured reliably in the installed position.

More information

TEST BENCHES AND POKA-YOKE

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OK / NOK AT THE LINE

A FAULTY PART MUST NOT MOVE ON

We also build functional test benches and poka-yoke inspection systems, software included. References include a mobile, universal test bench for leak testing of pneumatic brakes and poka-yoke inspection for hand brake production.

TEST BENCH AND POKA-YOKE

- Pneumatic connectors, pressure
- Touch-screen operator panel
- Software for the test sequence
- Part presence and position
- No wrong assembly
- OK / NOK feedback

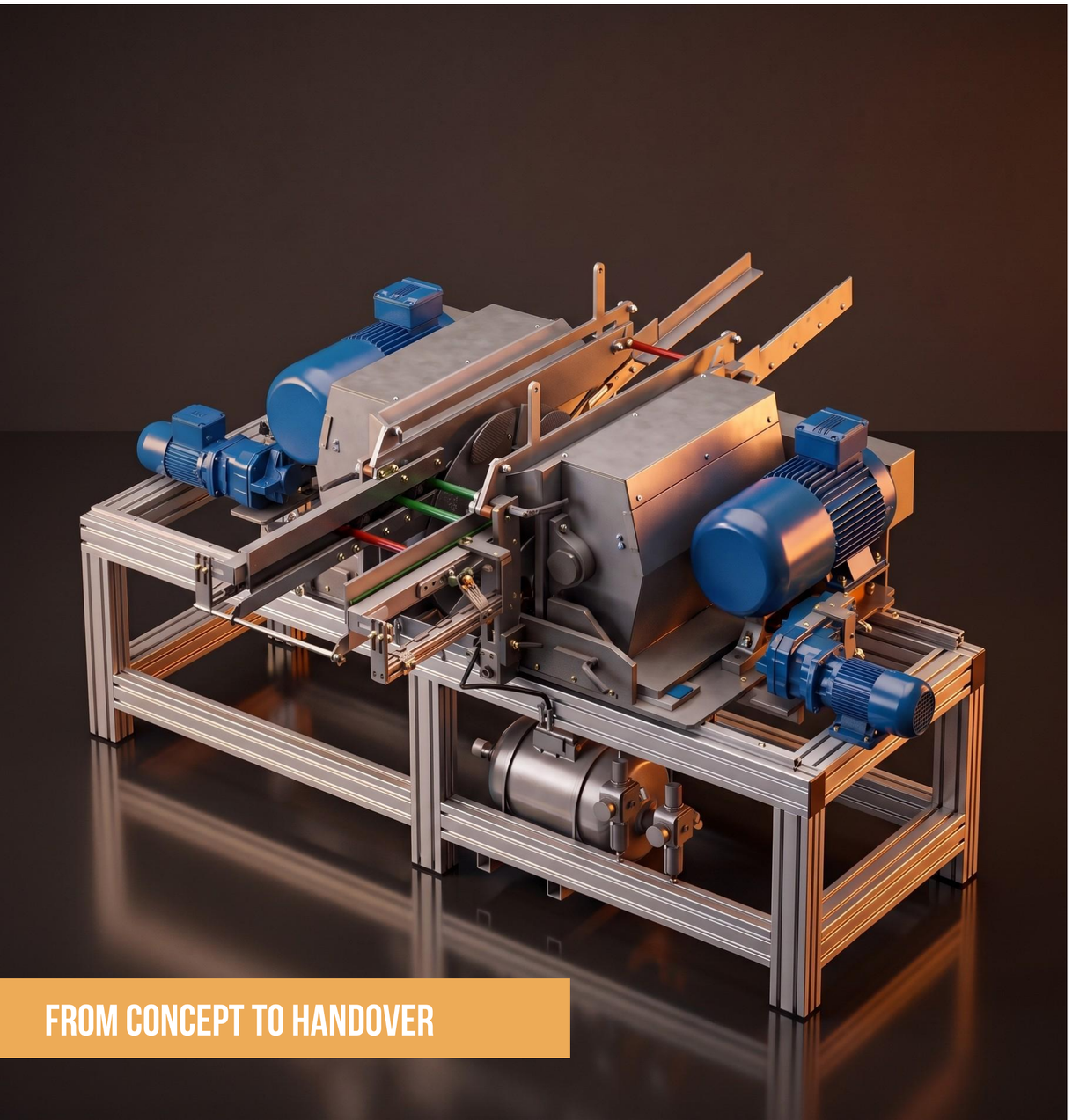
WHEN TO USE

- Where the defect shows in function rather than in dimension, or where human error must be designed out of the process.

More information

SPECIAL MACHINES AND PRODUCTION CELLS

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WHEN THE CATALOGUE HAS NO MACHINE FOR IT

We design and build special-purpose machines and production cells for the task, on aluminium profile frames with standard drives, so they stay easy to maintain and extend.

FROM OUR REFERENCES

- Pneumatic tube cutting table
- Tube deburring machine
- Press table
- Stage rotating mechanism
- Pasta production machine
- Production line cell

WHEN TO USE

- When a manual operation is slow, inconsistent or unsafe, and there is no machine for it on the market.

More information

HOW WE WORK

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FIVE STEPS FROM YOUR PART TO A MEASURED FIXTURE

1

REQUIREMENTS

Part CAD, drawing, measuring points, volumes.

2

CONCEPT AND QUOTATION

Fast concept, quotation within 1–5 days.

3

3D DESIGN FOR APPROVAL

Interactive, rotatable model and schedule.

4

MANUFACTURING

In 1, 2 or 3 shifts, on the agreed date.

5

ACCREDITED MEASUREMENT

Report, documentation, annual calibration.

More information

SOME OF OUR REFERENCES

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01

BMW

automotive

02

MERCEDES-BENZ

automotive

03

STANLEY

tools and fastening

04

KNORR-BREMSE

brake systems

05

SMP

automotive modules, bumpers

06

YANFENG

automotive interiors

07

GE AVIATION

aircraft engines

08

GE POWER

power generation

09

HBPO

front-end modules

10

ZARGES

aluminium cases and ladders

4000+

completed projects. Every image in this presentation shows our own reference work.

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WHY SOLMAN?

25+
years in automotive

4000+
successful projects

500+
satisfied customers

98%
customer satisfaction

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Company reg. no.: 03-09-137569

CERTIFIED MANAGEMENT SYSTEMS

NAH-2-0343/2023
KALIBRÁLÓLABORATÓRIUM

KEY REFERENCES

ABB · ACPS · ADIENT · ADMATIS · AGC · AMAZONE · ANTOLIN · AQ INDUCTIVES · AUTOFLEX-KNOTT · BMW · BORGWARNER · BOSCH · BRIDGESTONE · BSM · BYD · CATERPILLAR · CIE SALGGLAS · CLARION · DUVENBECK · ECKERLE · ELRINGKLINGER · FEHRER · FLABEG · FLAMESPRAY · GE · GE AVIATION · GESTAMENARM · GESTAMP · HAJDU AUTOTECHNIKA · HANON · HBPO · HI-LEX · HILTI · IBV · JOYSON · KIRCHHOFF · KÉSZ CSOPORT · KNIPPING · KNORR BREMSE · KÖNIG · KÖRBER · KUKA · LOTTE · MAGNA · MAGNUS AIRCRAFT · MAGYARMET · MAHLE · MERCEDES · MOTHERSON · MUSASHI · NIDEC · OERLIKON · PLASTIC OMNIUM · PRIDGEON&CLAY · Q AUTOMOTIVE · SAMSUNG · SANOH · SIIX · SIMON PLASTIC · SISECAM · SMP · STADLER · STANLEY · STEELFLEX · SUPRAJIT · THYSSENKRUPP · TOYO SEAT · VAMAV · VIDEOTON CSOPORT · WAREMA · WERNERCO · WOCO · XYLEM · YANFENG · ZARGES

OUR SERVICES

QUALITY MANAGEMENT

- QUALITY INSPECTION
- INTERIM MANAGER / ENGINEER
- PROCESS IMPROVEMENT
- TRAINING / WORKSHOP

METROLOGY

- CONTRACT PROGRAMMING
- CONTRACT MEASUREMENT
- GAUGE CALIBRATION
- METROLOGY EQUIPMENT SALES

DESIGN AND MANUFACTURING

- REVERSE ENGINEERING
- FIXTURE DESIGN AND MANUFACTURING
- CONTAINER DESIGN AND MANUFACTURING

ADDITIONAL SERVICES

- GAUGE MANAGEMENT
- TEST LABORATORY MANAGEMENT
- FAILURE ANALYSIS (CT AND X-RAY)

ENGINEERING SERVICES IN QUALITY MANAGEMENT, METROLOGY AND DESIGN & MANUFACTURING

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