



CROWD

our expertise comes from experience



Engineering
services

Manufacturing
systems



IT-Services



DELIVERING QUALITY PRODUCTS AND SERVICES

Crowd – A Different Kind of Company

- ⚙ Multi-Disciplinary Engineering Services
- ⚙ Prototype Fabrication and Low-Rate Production
- ⚙ Installation and Testing of Products
- ⚙ Staff Training and Technology Transfer
- ⚙ After-Sale Support and Product Lifecycle Management

Total Solution Engineering

ENGINEERING SERVICES



Delivering quality work to our customers is our highest priority



We use cost-efficient, state of the art equipment and processes



Rigorous Quality Assurance is part of our everyday routine



Our highly qualified staff is fully committed to meeting and exceeding customer requirements



CROWD is fully committed to the continuous development of in-house design and manufacturing capabilities.

Our Mission - Customer Satisfaction

| | |
|----------------|--|
| Mission | <p>Our mission is to deliver services and products satisfying our customer's needs. Our company supports the continuous development it's employee's skills and knowledge.</p> <p>We are committed to succeeding at complex tasks, leading to expanding our capabilities and the frontiers of our activities.</p> |
| Vision | <p>Our vision is a company staffed with skilled professionals focused on our customer's needs. Our knowledge and skills base is the most valuable part of our organization and the foundation of all our work. Our company represents highly skilled engineers working in unison with a highly qualified and well-equipped manufacturing facility.</p> |
| Goal | <p>Our goal is to build a strong profitable company bringing a diversified experience base to providing complete solutions to our customers complex problems.</p> |

ENGINEERING SERVICES

An experienced staff promoting simplicity in solving complex problems

MECHANICAL DESIGN

- Requirement analysis
- 3D/2D mechanical design
 - (CATIA V5, UG NX)
- Structural analysis
 - (Hand calcs and FEM)
- Kinematics design
- Assembly design
- System synthesis

**We Deliver
Total
Solution
Engineering**

MECHATRONICS / ELECTRICAL ENGINEERING

- Requirements analysis
- Component selection
- System synthesis / Circuit design
- Custom designed analog and digital electronic blocks for specific project needs
- Custom instrumentation design
- Electrical harnesses design
- System integration

SOFTWARE

- Algorithm building
- Microcontrollers and embedded systems programming
 - User interface design and programming
- Network services

WORKSHOP EQUIPMENT AND MANUFACTURING CAPABILITIES



Mechanical Workshop

- Machining of the metal and plastic materials:
 - Precision 5(6) axis CNC machining center MAZAK VTC-800/30SR
 - High speed 4.5 axis CNC machining center BROTHER 700X1
 - Precision CNC horizontal milling machine (swiss) MAZAK Quick Turn 250ML
 - Manual milling machine AVIA FNC 25 (working area 280x750 [mm])
 - Manual lathe TUR 630 M x 1000 (swing over bed 630 [mm], center distance 1000[mm])
 - Manual drilling machine (coordinate table working area 600x1000[mm])(for more detailed machine specifications see appendix slides)
- Cutting :
 - Wire-Cut EDM Fanuc ROBOCUT α-C600iB
 - Waterjet Kimla Streamcut 3116 (on order - will be installed June 2020)
 - Band Saw BOMAR Rrgonomic 320
 - Manual plasma cutter – Lincoln Electric
- Welding TIG
 - Welder - Lincoln Electric Invertec 400TPX (K12043-1),
 - Cooler - Lincoln Electric Coolarc 46 (K14105-1)
- Welding MiG/MAG
 - Lincoln Electric Powertec i380C2
 - Migatron Sigma 400

***We Are Continuously
Developing In-House
Manufacturing
Capabilities.***

WORKSHOP EQUIPMENT AND MANUFACTURING CAPABILITIES –cont.

Mechanical Workshop

- Heat treatment Induction Furnace 800x800x1000mm
- Hydraulic and pneumatic system components installation and integration
- 3D Printers: Large Volume Reprap clone (FDM technology)–
 - 300x300x500 [mm] working volume,
- UV LCD light curing printer- 120 x 65 x 138[mm] working volume,

Quality control

- Dye penetrant inspection
- Ultra sonograph NDT: Temate PowerBox H
- Eddy Current Flaw Detector: ETHER NDE Vantage
- Magnaflux Magnetic Particle Detection
- CMM portable inspection arm – Coming 2020

Additive manufacturing

3D Printers:

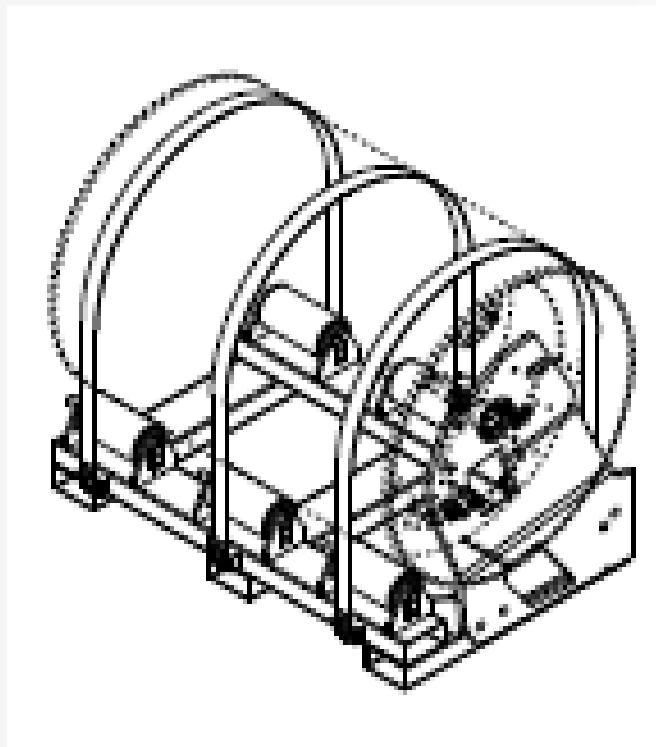
- Large Volume Reprap clone (FDM technology)– 300x300x500 [mm] working volume,
- UV LCD light curing printer- 120 x 65 x 138[mm] working volume,

Electrical and electronics lab

- Power and control cabinet's assembling
- Electronic blocks assembling
- Electrical harnesses assembling
- Printed circuit assembling - manual soldering ESD protected workstation
- Measurement equipment:
 - TEKTRONIX TMS220 OSCILLOSCOPE
 - DIGILENT ANALOG DISCOVERY 2 USB OSCILLOSCOPE, LOGIC ANALYZER AND WAVEFORM GENERATOR
 - MULTIMETER - FLUKE 117 SERIES
 - MULTIMETER – BRYMEN 869 SERIES



DRUM OSCILLATOR – DESIGN & MANUFACTURING

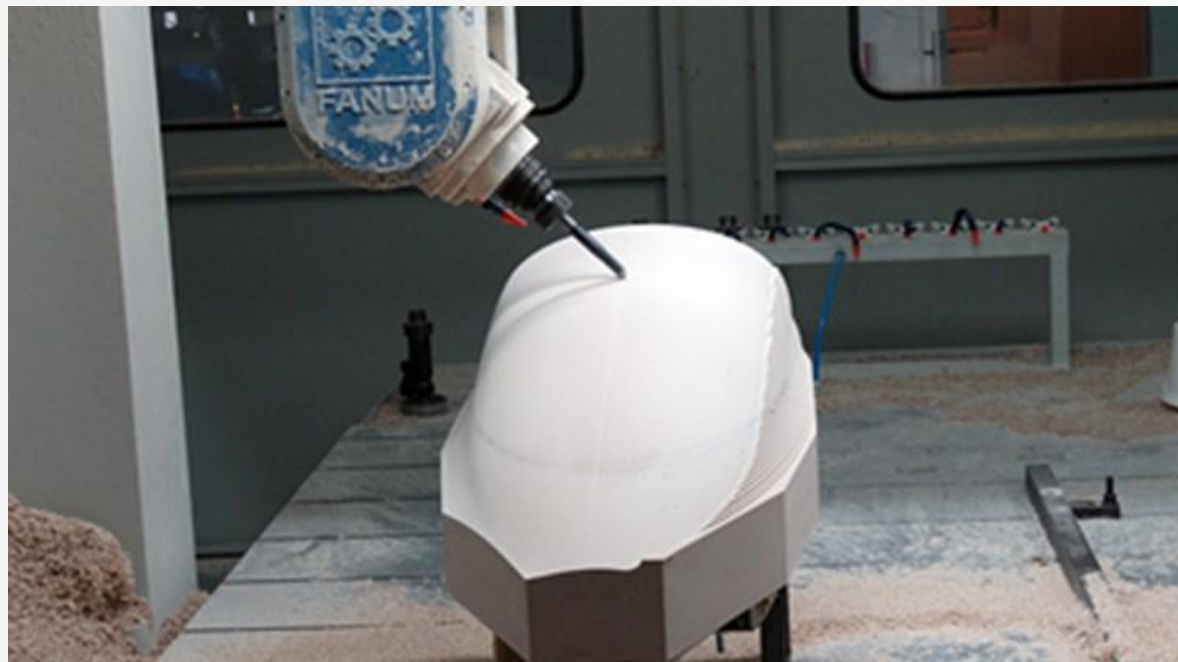


Brief characteristic:

- Functional, full scale mockup of novel steam roller oscillating drum design
 - Built for endurance tests of new kinematic solution
 - Internal oscillator mechanism (mechanical vibration generator)
 - Interfacing system for hydraulic propulsion
- Built to the customers internal manufacturing standards for heavy construction equipment
- Design successfully validated during test



BALLISTIC TEST SPECIAL TOOLING – BIRD STRIKE (WIA/GE)

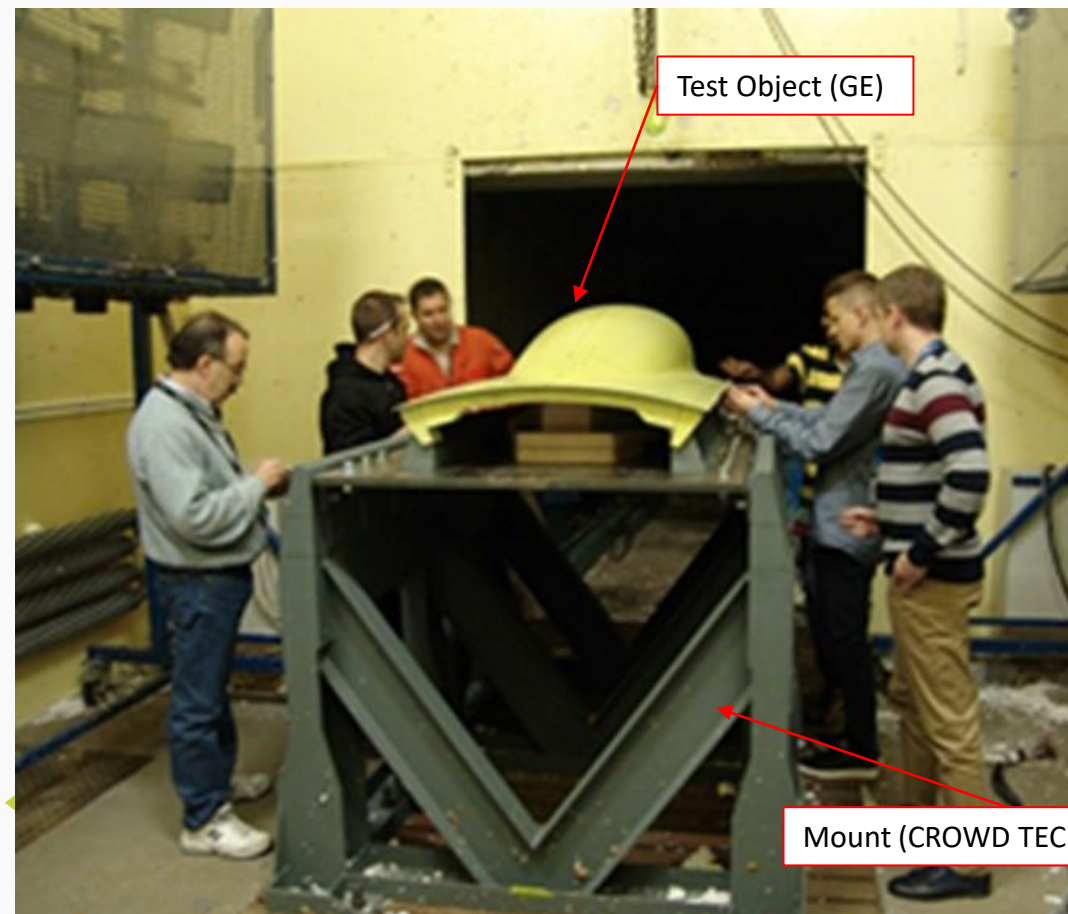


Test Object Deflection Measurement – Reference Body

Brief characteristic:

- Precise 5 axis machining
- Design successfully validated during test

OUR EXPERIENCE – ACCOMPLISHMENTS



Bird Strike Test - Horizontal Test Mount

Brief characteristic:

- Tool designed to create rigid boundary condition
- Modular design allows mounting and testing of various test articles
- Designed to fit within limited test cell space
- Design allows for easy, precise adjustment of impact point
- Design successfully validated during test

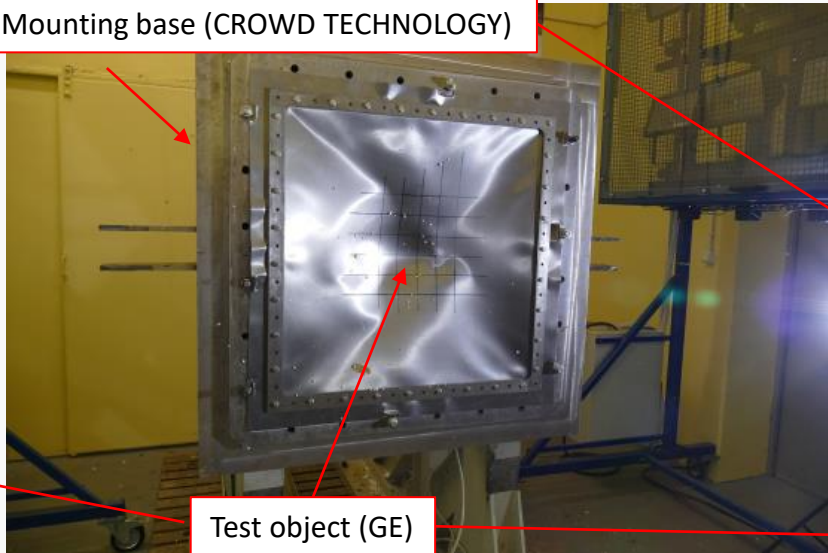


BIRD STRIKE TEST
C919 ENGINEERING TEST



BIRD STRIKE TEST
MATERIAL PROPERTIES CHARACTERIZATION

Mounting base (CROWD TECHNOLOGY)



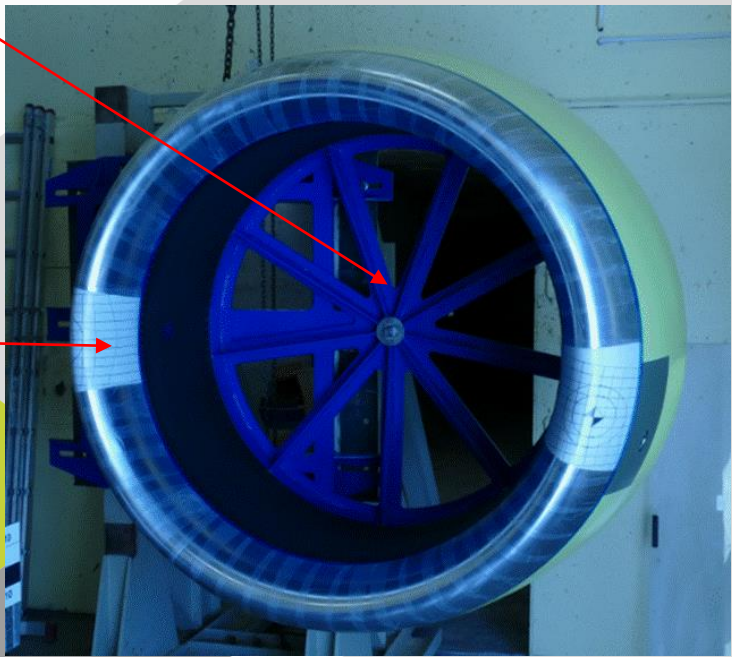
Test object (GE)

Brief characteristic:

- Tool designed to create rigid boundary condition
- Design withstands multiple tests without damage



BIRD STRIKE TEST
GLOBAL7000 CERTIFICATION



Brief characteristic:

- Part 25 Certification level test
- Tool designed to create rigid boundary condition (conservative approach to test)
- Designed to fit within limited test cell space
- Allows for simple, precise adjustment of impact point
- Design allows easy repositioning of the test object for multiple impact positions
- Deflection measurement features integrated in installation

Brief characteristic:

- Tool designed to create rigid boundary condition
- Designed to fit within limited test cell space
- Design allows for simple, precise adjustment of impact point
- Design allows easy repositioning of the test object for multiple impact positions

SPECIAL TOOLS FOR BALLISTIC TEST – BIRD STRIKE (WIA/GE)



Sabot Separator for Pneumatic Launcher

Brief characteristic:

- Designed for compatibility with sabot type developed by test team
- Unlimited life with application of high dynamic impact loads
- Design allows easy removal of spent sabot after shot with no special tools required



Ballistic Gel Mixer/De-Gas Chamber

Brief characteristic:

- Assures repeatable conditions of mixing and de-gassing ballistic gel for molding
- Gas tight, easy and safe operation (pressure vessel)
- Robust method of manufacturing homogeneous projectiles



Ballistic Gel Projectile Trim Tool

Brief characteristic:

- Cost effective solution protects prepared projectile
- Repeatable trimming of the projectile
- Application of FDM 3D printing

SPECIAL EQUIPMENT FOR LARGE WIND TUNNEL $\phi 5M$ – (WIA) - New Model Base

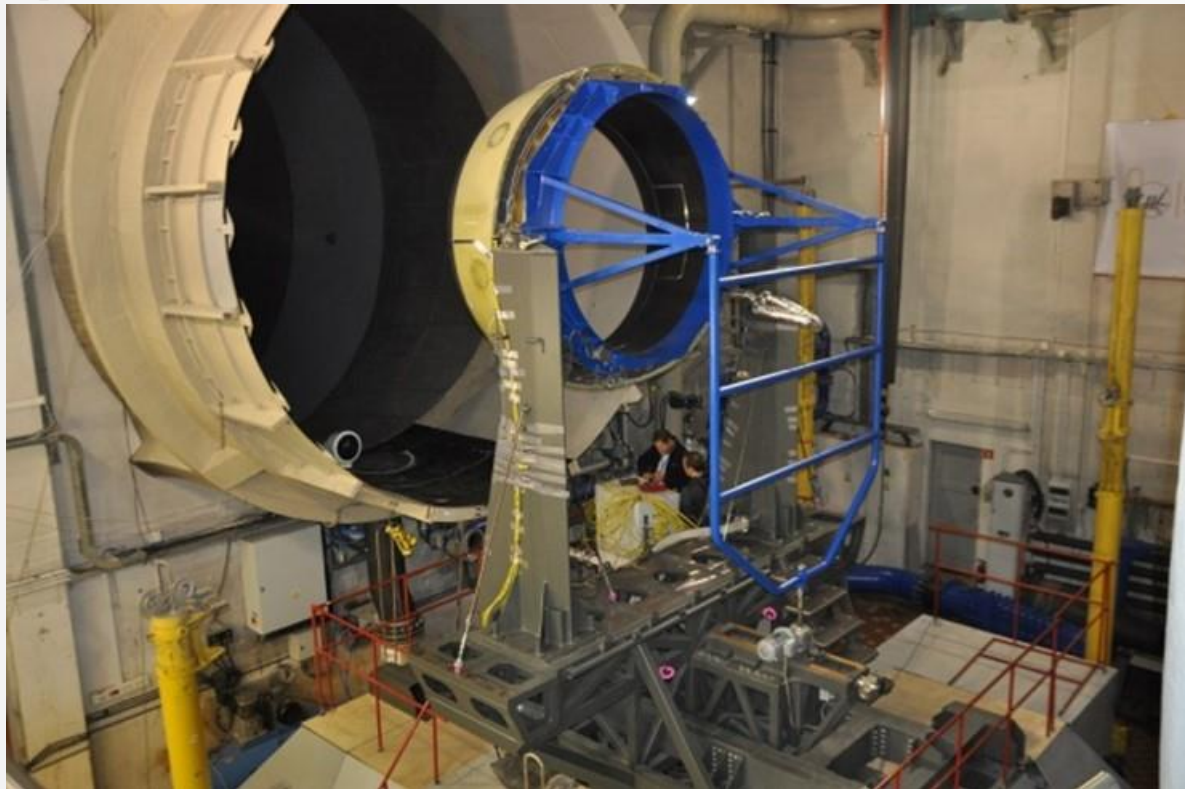


Brief characteristic:

- Modular design suitable for a wide range of tests
- Compatible with existing wind tunnel environment
- Designed to increased loads after wind tunnel modification
- Equipped with remote controlled angle of attack change mechanism
- Designed for easy accessibility
- Integral hoisting points, work platform mounts,
- Tertiary flow ducts integration



INSTALLATION PYLONS FOR INLETS WITH PNEUMATIC NACELLE ANTI-ICE SYSTEM INSTALLATION INTERFACE



C919 Inlet Test

Brief characteristic:

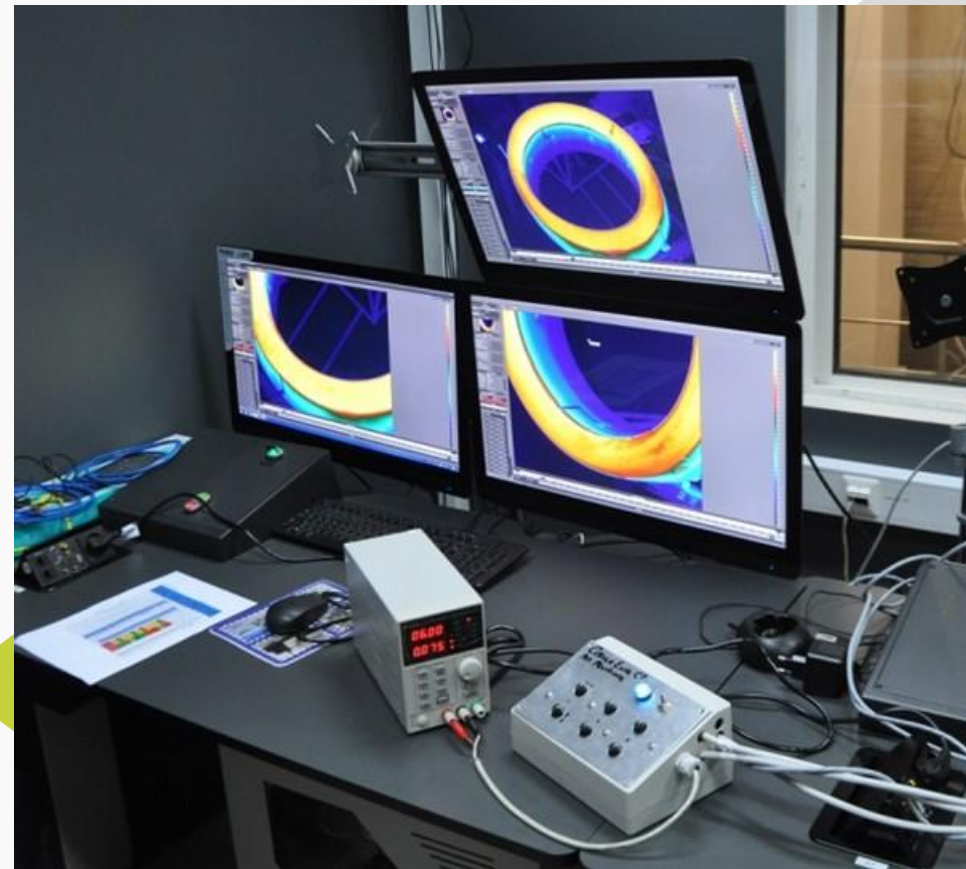
- Modular design - maximal level of commonality for both tests
- Adjustable angle of attack
- Custom build instrumentation for airflow measurement condition - high temperature air probes
- Secondary flow hot air supply interface compatible with AS1895 standard connectors
- Thermal insulation of hot air feeders



Global 7000 Inlet Test



REMOTELY OPERATED MOUNTS FOR THE FLIR® THERMAL CAMERAS WITH AERO FAIRINGS



Brief characteristic:

- Mounts and aerodynamic fairings designed to survive direct airstream wind tunnel environment
- Stable platform for thermal imaging cameras with vibration isolation
- User-friendly remote-control interface
 - Provides broad camera range of movement allowing coverage of complete test object
- Design for reliability (Difficult access to the mounts after installation due to wind tunnel size)
- Design successfully validated during test



SMALL TRANSONIC WIND TUNNEL FOR COOLING EFFICIENCY TESTS OF SURFACE AIR COOLED OIL COOLER / AIRCRAFT NACELLE PRESSURE RELIEF SYSTEM DYNAMIC TEST– (WIA/GE)



Air Cooled Oil Cooler Test Configuration

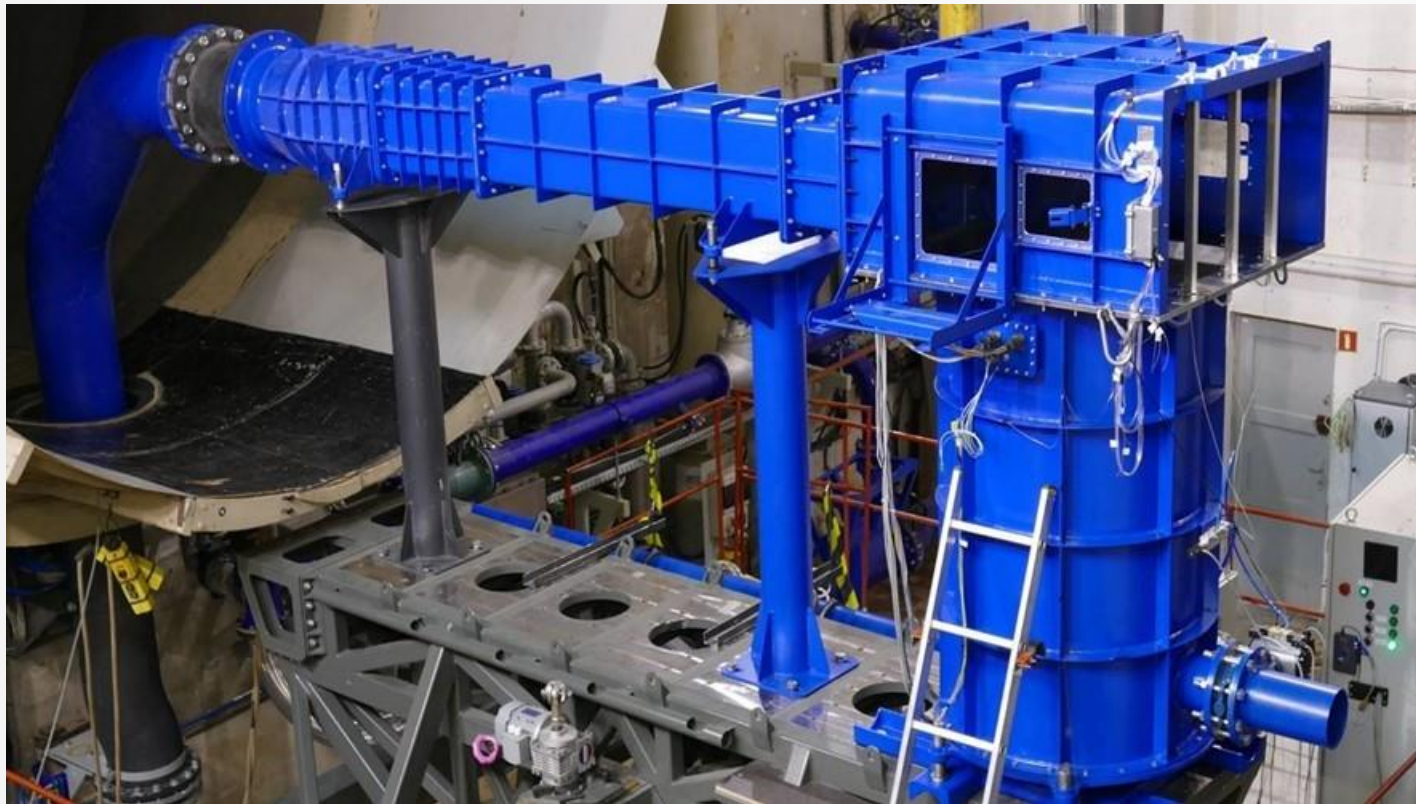
Brief characteristic:

- Blow down type wind tunnel
- Modular design with maximum component commonality for ACOC and PRD tests
- Includes electric power system for heating ACOC test samples
- Custom design and build test aero data probes for both tests



Custom Build Air Probes

AIRCRAFT NACELLE PRESSURE RELIEVE SYSTEM DYNAMIC TEST– (WIA/GE)

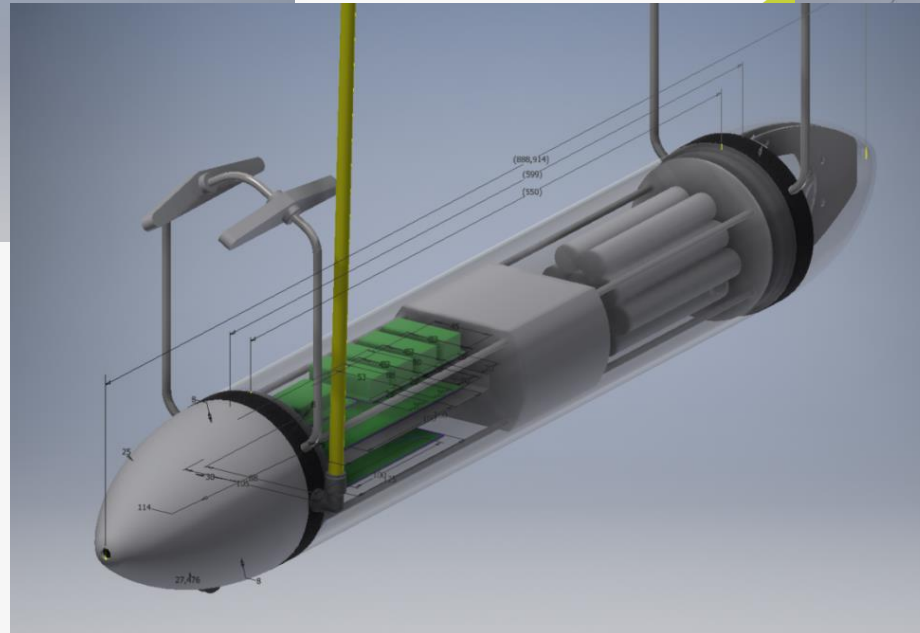
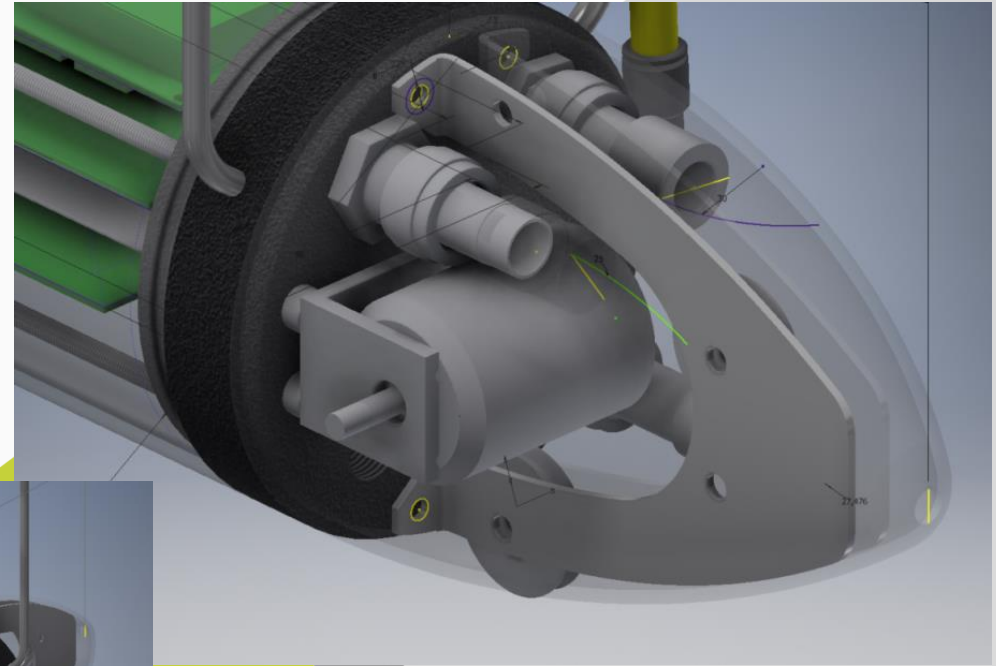
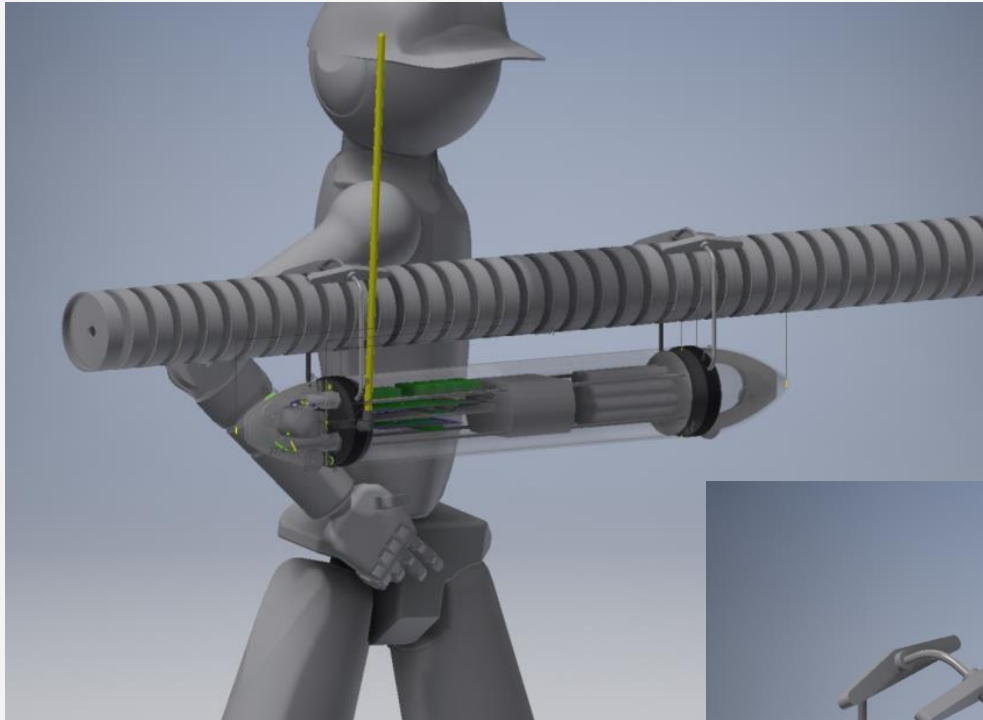


Brief characteristic:

- Static & dynamic test, extreme high-speed event
- Custom pressure triggered auto – release PRD lock system (high reaction speed)
- Test control system integrated with wind tunnel secondary and tertiary flow systems
- Full instrumentation integration:
 - High speed camera with lights, pressure transducers, aero data probes, encoders, and accelerometers
- Instrumentation suite integration with wind tunnel DAQ system, including Particle Image Velocimetry measurement

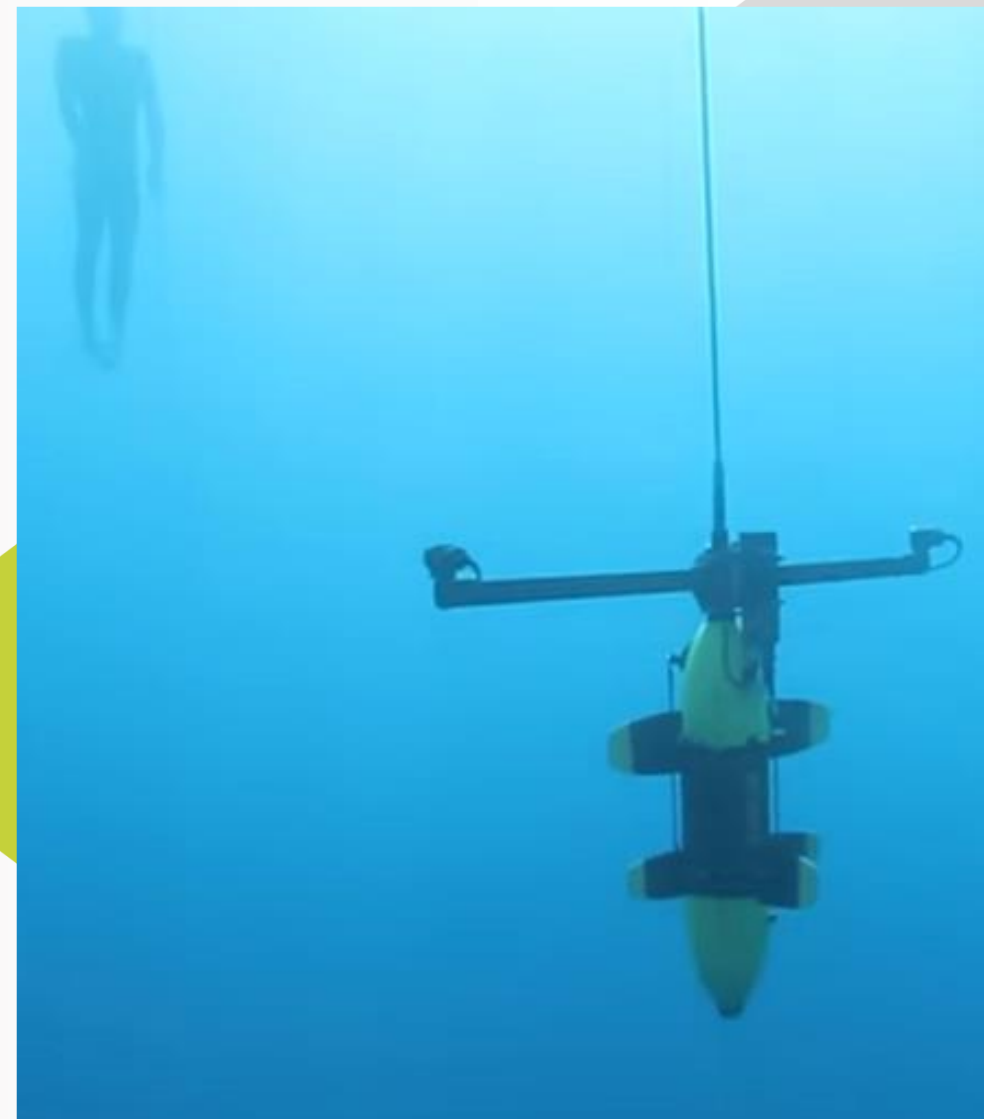
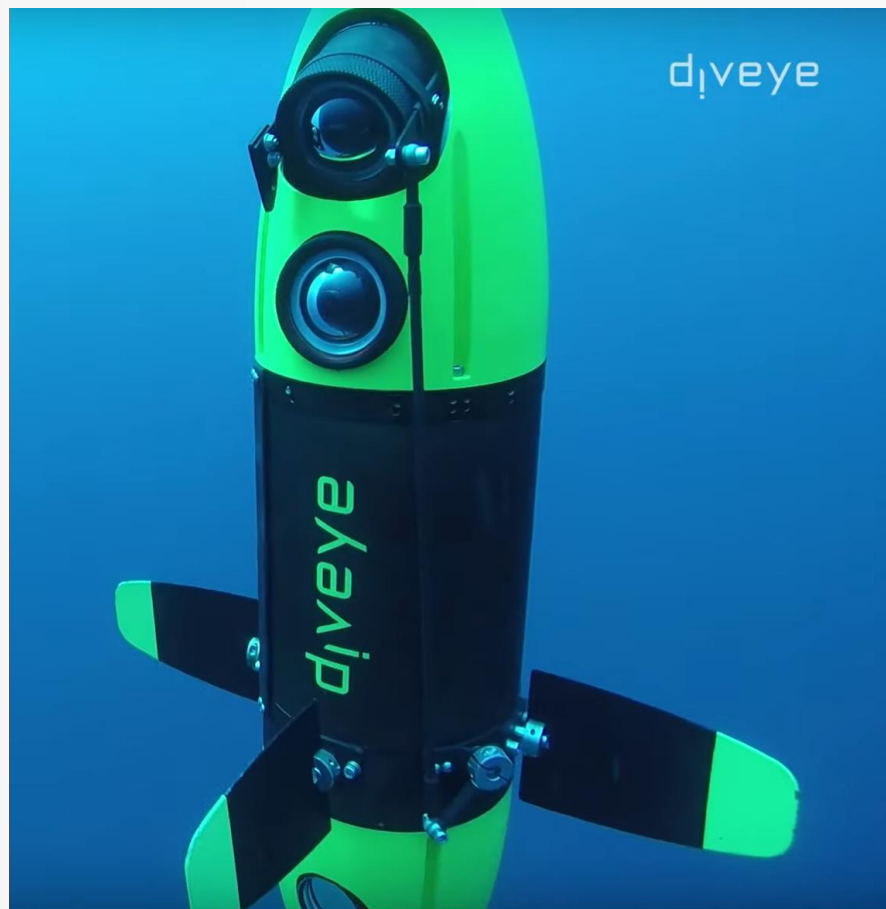


UNDERWATER CAMERA FOR SWIMMING COMPETITION FILMING – (PROJECT FROZEN IN ADVANCED CONCEPT STAGE)





SUBSEA ROV FOR UNDERWATER SCENES FILMING (FREE DIVING COMPETITION SUPPORT) – (DIVEYE®)

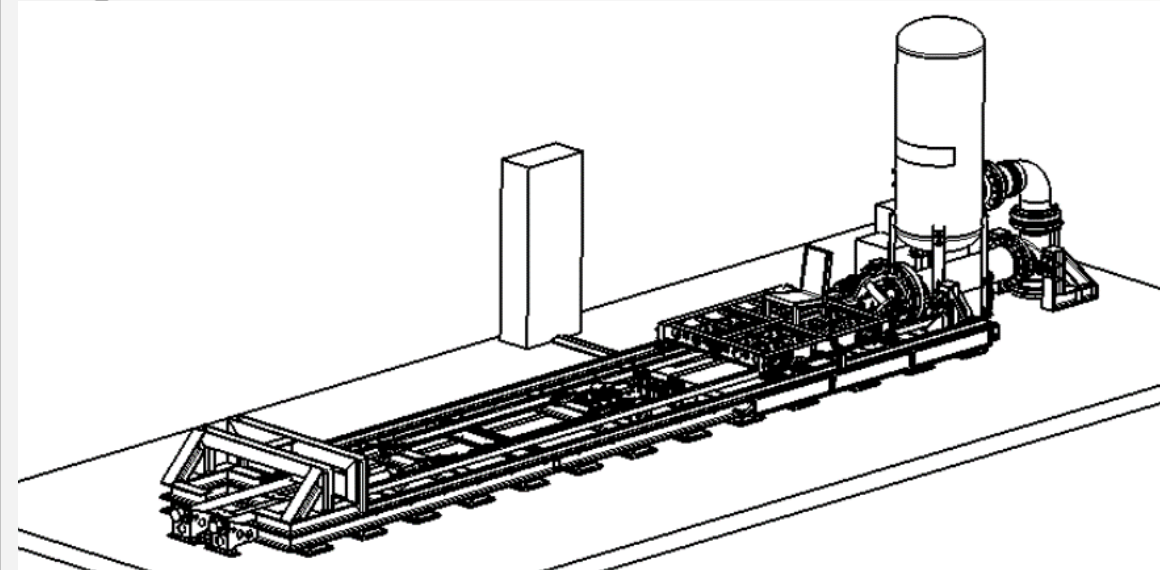


Brief characteristic:

- Submersible remotely operated scene filming device
- Modular design, modules designed to be air transportable within limits for checked baggage
- Operational depth >150m
- On continuous contract with AIDA association
- Subject of patent protection CROWD SP. Z O.O.
- Enjoy watching: <https://www.youtube.com/channel/UCPKSYo-e79Cwu5u0ERms0cw>



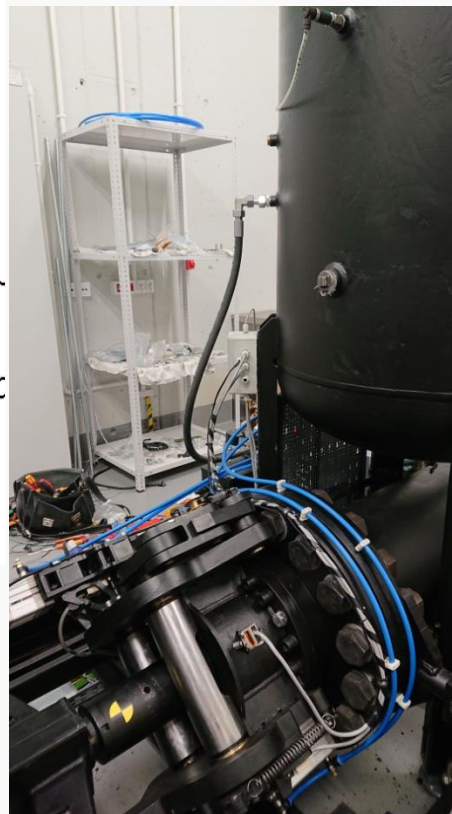
INSTALLATION FOR DYNAMIC TESTING OF AUTOMOTIVE COMPONENTS – (WROCLAW UNIVERSITY OF TECHNOLOGY)



Unique Design of Pneumatic Propulsion System

Brief characteristic:

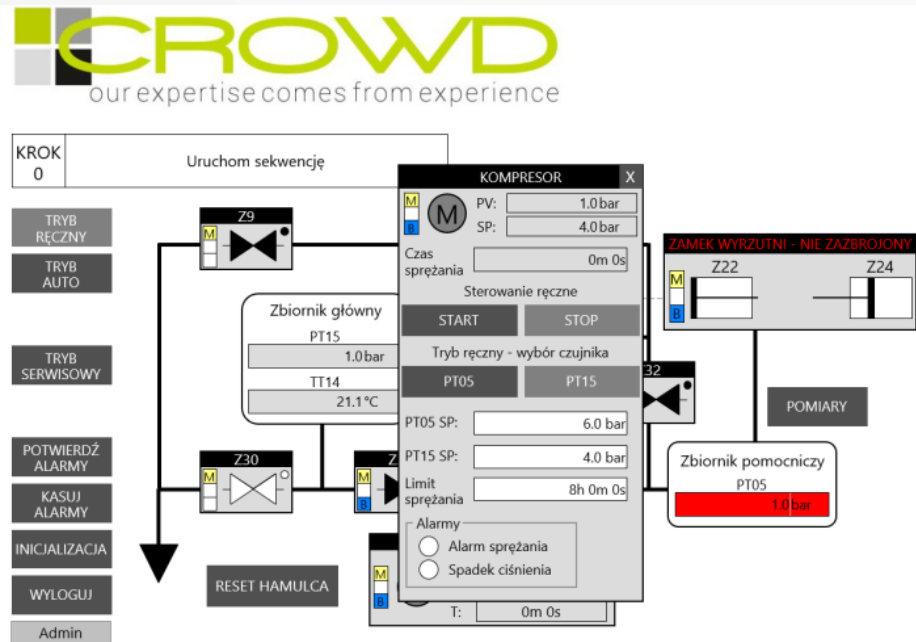
- System approach
 - From customer requirements and industry standard analysis to design/analyze/build/install final machinery
- Pneumatic propulsion with near linear acceleration characteristic
- Unique design of the cart arresting system - rope and hook type with dumped flow type energy absorbers
- Fully automatic launch-braking sequence



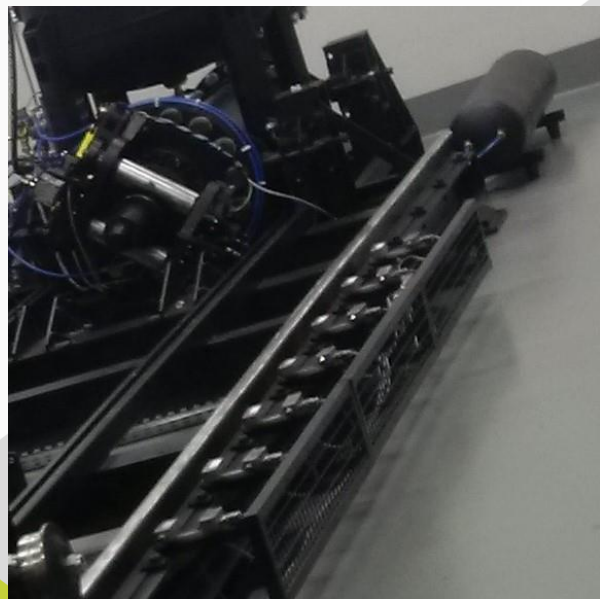
Completed Track with Test Cart and Propulsion/Braking System Installed



INSTALLATION FOR DYNAMIC TESTING OF AUTOMOTIVE COMPONENTS – (WROCLAW UNIVERSITY OF TECHNOLOGY)



GUI of Software Developed by CROWD

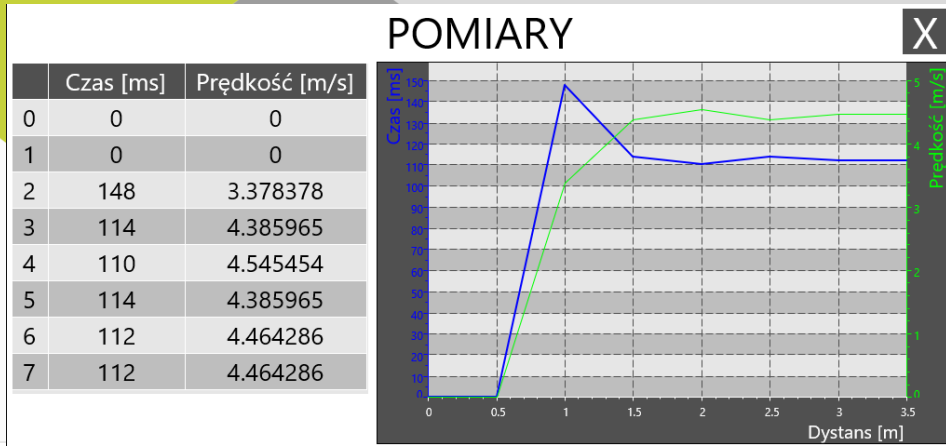


Custom Build Cart Speed/Acceleration Measurement System Based on In-House Designed and Manufactured Laser Sensors

Custom Designed and Build Power and Control Rack

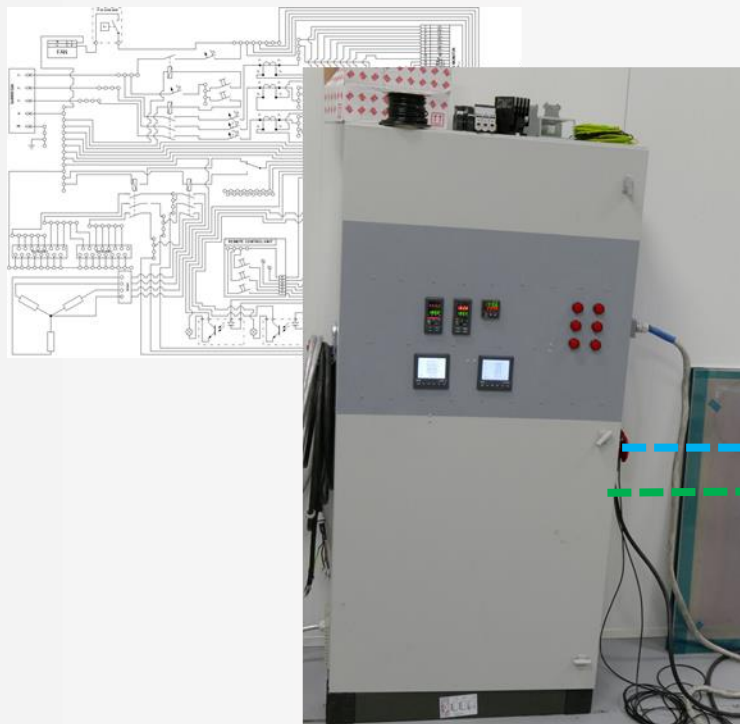
Brief characteristic:

- Control system based on high quality off the shelf industrial controllers
- Software build by CROWD from algorithm development up to code delivery and internal acceptance tests
- Custom designed multilayer safety strategy
 - Including lab sensor arrangement, mechanical safety features with limit switch type status indication and itegration through software





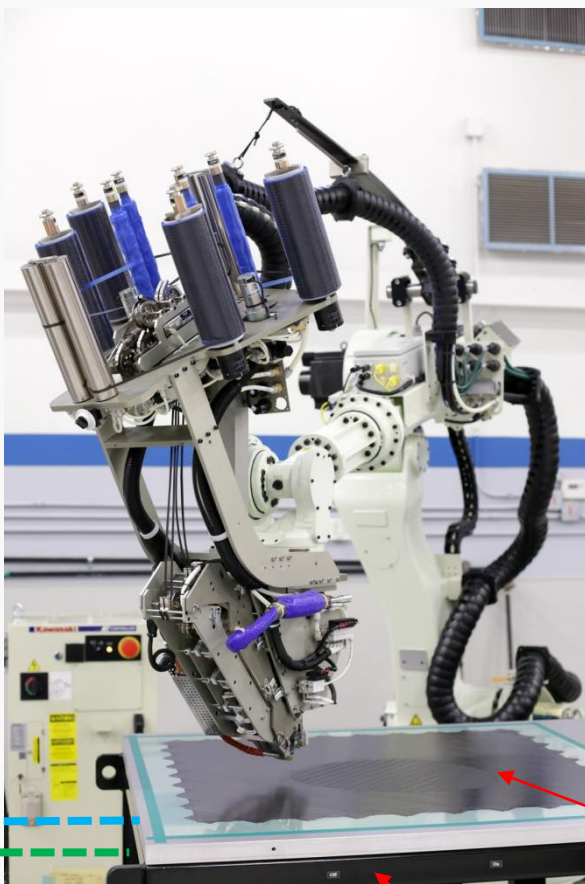
POWER AND CONTROL RACK FOR MOLDS USED IN THERMOPLASTIC CONTINUOUS FIBER PARTS MANUFACTURING (WIA)



Power and Control Rack

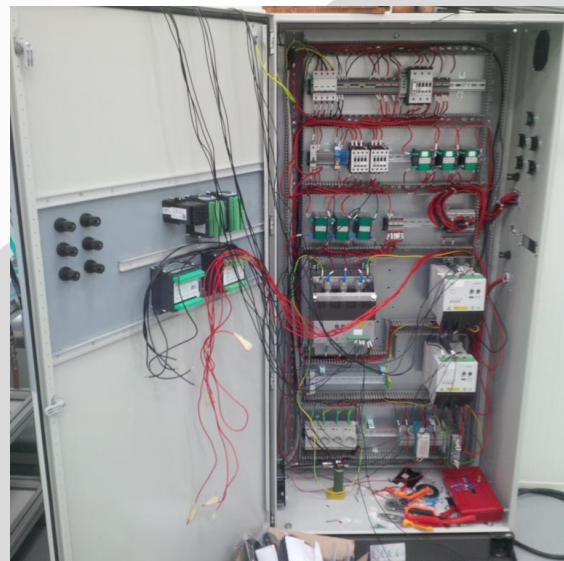
Power Feeder

Feedback Signal –
Mold Temperature



Heated Mold

Thermoplastic Composite Material



Brief characteristic:

- Power and Control Rack
- Mechanical modifications to the off the shelf sourced rack
- Component selection
- Synthesis of the wiring drawings
- Installation and validation of the components
- Wiring
- Programming controllers
- Commissioning and customer support for successful intro of equipment

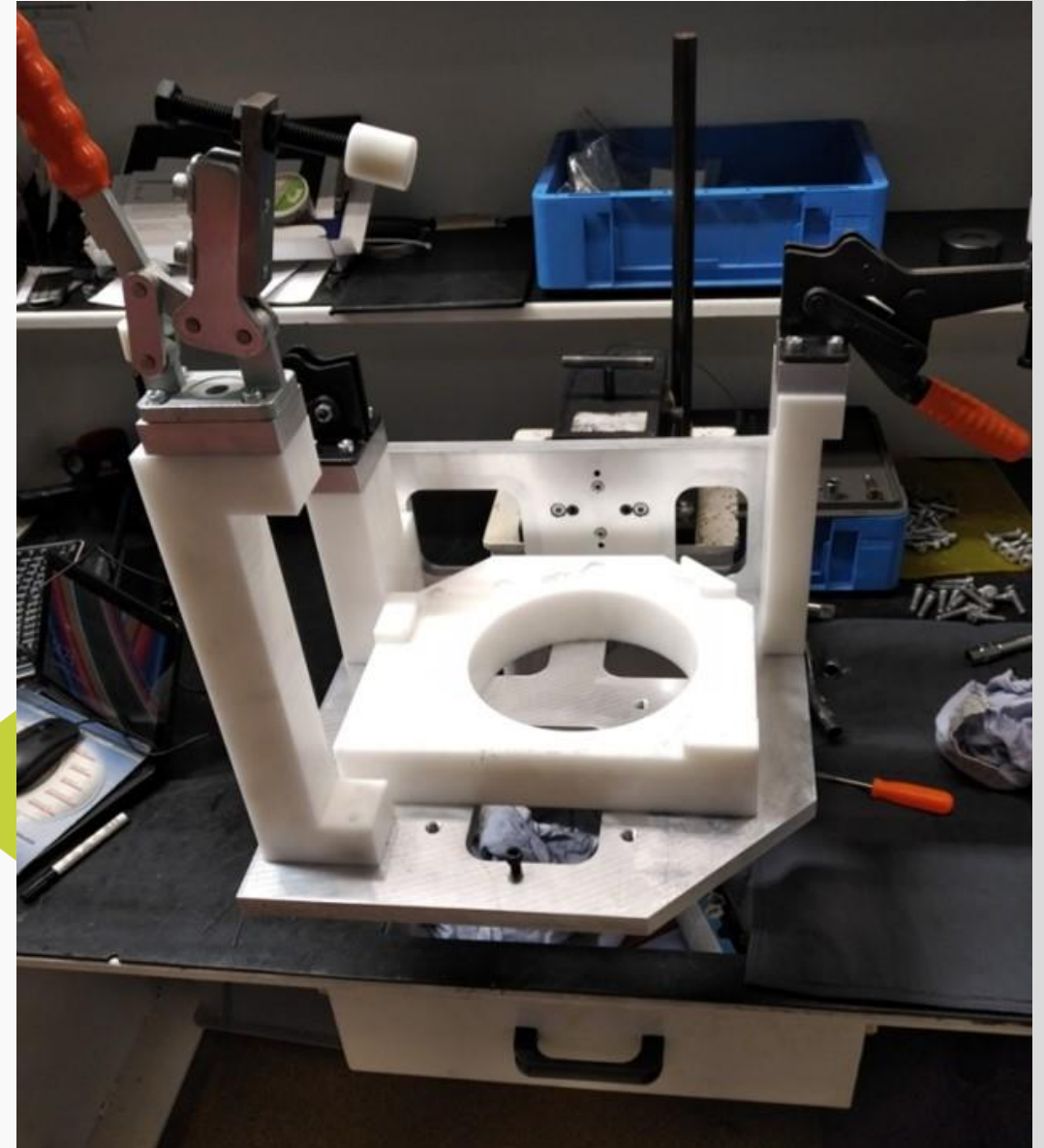
 **PRODUCTION TOOLING FOR ELECTRIC MOTOR ASSEMBLY (AAM)**



Brief characteristic:

- Analysis of customer's manufacturing procedures
- Designed with human factor and ergonomic considerations
- Design process based on digital mockup validated by customer on live hardware
- Tool fully met expectations of customer in a term of delivery time, cost and quality

OUR EXPERIENCE – ACCOMPLISHMENTS



PRODUCTION TOOLING FOR CAR CHASSIS MANUFACTURING LINE (OPEL)



⚙️ **Small Welding Fixture**

Brief characteristic:

- Analysis of customer's manufacturing procedures
- Designed with human factor and ergonomic considerations
- Build for automated manufacturing line
- Design process based on digital mockup validated by customer on live hardware,
- Tool fully met expectations of customer in a term of delivery time, cost and quality
- **COMPLETE SOLUTION - Mechanical Components, Kinematic System Integration, Sensors , Computerized Control System and Software**



⚙️ **Lightweight Robot Arm Carry Adaptor - Car Chassis Components**



⚙️ **Large Welding Fixture**

Appendix.1.

Machines general specification

- **Specification Outline**

- Control - Mazatrol Matrix 2 / SmoothX / Siemens 840D sl
- X,Y,Z Axis strokes - 3000 x 800 x 720mm
- Rotary axis range - B – 220 deg and A1/A2 – 360 deg
- Max. supported weight - 4,000kg
- Max. swing - Ø820mm
- Distance between NCRT- 3,690mm
- NCRT surface - Ø500mm
- Spindle speeds - 18,000 rpm
- Spindle powers - 35kW (S1 rating) Siemens
26kW/ 35kW (30%ED/ 10%ED) Mazatrol
- Through coolant - 5 bar to 15 bar (70bar)
- Tool positions - 30 to 48 (chain magazine) 155 (tool hive)
- Tool shank - CAT/BT No 40/ HSK-A-63
- Tool detection - Standard



5(6) Axis CNC MAZAK VTC-800/30SR

| SPECIFICATION | | BED LENGTH - 40 IN |
|----------------|---------------------------------|--------------------|
| Capacity | Maximum Swing | 24.04 in / 610 mm |
| | Maximum Machining Diameter | 13.780 in / 350 mm |
| | Maximum Bar Work Capacity | 3.0 in / 65 mm |
| | Maximum Machining Length | 39.108 in / 995 mm |
| Main Spindle | Chuck Size | 10 in |
| | Maximum Speed | 4000 rpm |
| | Motor Output (30 minute rating) | 35.0 hp / 26 kw |
| Turret (Upper) | Number of Tools | 12 |
| Feed Axes | Travel (X Axis) | 8.75 in / 190 mm |
| | Travel (Z Axis) | 40.75 in / 1035 mm |
| | Travel (W Axis) | 42.13 in / 1070 mm |



Horizontal Milling Machine Mazak QUICK TURN 250 MS

| Item | | | S700X1 | S500X1 | S300X1 |
|----------------------|---|-------------------|---|--|--|
| CNC Unit | | | | CNC-C00 | |
| Travels | X axis | mm (inch) | 700(27.6) | 500(19.7) | 300(11.8) |
| | Y axis | mm (inch) | | 400(15.7) | |
| | Z axis | mm (inch) | | 300(11.8) | |
| | Distance between table top and spindle nose end | | | 180~480(7.1~18.9) | |
| Table | Work area size | mm (inch) | 800×400(31.4×15.7) | 600×400(23.4×15.7) | |
| | Max.loading capacity (uniform load) | kg (lbs) | | 250[300 *6] (551[661 *6]) | |
| Spindle | Spindle speed | min ⁻¹ | 10,000min ⁻¹ specifications : 10~10,000 10,000min ⁻¹ high-torque specification (Optional) : 10~10,000 | 16,000min ⁻¹ specifications (Optional) : 16~16,000 27,000min ⁻¹ specifications (Optional) : 27~27,000 | |
| | Speed during tapping | min ⁻¹ | MAX. 6,000(27,000min ⁻¹ specifications: MAX. 8,000) | | |
| | Tapered hole | | 7/24 tapered No.30 | | |
| | BT dual contact system (BIG-PLUS) | | Optional | | |
| | Coolant Through Spindle (CTS) | | Optional (CTS option is not available for 27,000min ⁻¹ spec.) | | |
| Feed rate | Rapid traverse rate (XYZ-area) | m/min (inch/min) | 50 × 50 × 56(1,969 × 1,969 × 2,205) | | |
| | Cutting feed rate | mm/min (inch/min) | X, Y, Z axis : 1~30,000 (0.04 ~ 1,181) *7 | | |
| ATC unit | Tool shank type | | MAS-BT30 | | |
| | Pull stad type *4 | | MAS-P30T-2 | | |
| | Tool storage capacity | pcs. | 14 / 21 | | |
| | Max. tool length | mm (inch) | 250(9.8) | 160(6.3) [21 tool] | 250(9.8) [14 tool] |
| | Max. tool diameter | mm (inch) | 110(4.3) | | |
| | Max. tool weight *1 | kg (lbs) | 3.0(6.6) / Tool (TOTAL TOOL WEIGHT : 25(55.1) for 14 tools, 35(77.2) for 21 tools) | | |
| | Tool selection method | | Random shortcut method | | |
| Tool change time *5 | Tool To Tool | sec. | 0.8 | | |
| | Chip To Chip | sec. | 1.4 | | |
| | Cut To Cut | sec. | 1.2 | | |
| Electric motor | Main spindle motor (10min/continuous)*2 | kW | 10,000min ⁻¹ specifications : 10.1 / 6.7 10,000min ⁻¹ high-torque specifications (Optional) : 12.8 / 8.8 | 16,000min ⁻¹ specifications (Optional) : 7.4 / 4.9 27,000min ⁻¹ specifications (Optional) : 8.9 / 6.3 | |
| | Axis feed motor | kW | X, Y axis : 1.0 Z axis : 2.0 | | |
| Power source | Power supply | | AC V±10%, 50/60Hz±1Hz | | |
| | Power capacity (continuous) | kVA | 10,000min ⁻¹ specifications : 9.5 10,000min ⁻¹ high-torque specifications (Optional) : 10.4 | | |
| | Air supply | | 0.4~0.6(recommended value : 0.5MPa *8) | | |
| | Regular air pressure | MPa | | | |
| Machining dimensions | Required flow | L/min | 45(27,000min ⁻¹ specifications : 115) | | |
| | Height | mm (inch) | 2,497(98.3) | | |
| | Required floor space [with control unit door open] | mm (inch) | 2,050×2,220 [2,692] (80.7×87.4 [106.0]) | 1,560×2,220 [2,692] (61.4×87.4 [106.0]) | 1,080×2,557 [2,776] (42.5×100.7 [109.3]) |
| | Weight (including control unit, machine cover) | kg (lbs) | 2,400(5,291) | 2,250(4,960) | 2,200(4,850) |
| Accuracy *3 | Accuracy of bidirectional axis positioning (ISO230-2:2006) | mm (inch) | 0.006~0.020 (0.00024 ~ 0.00079) | | |
| | Repeatability of bidirectional axis positioning (ISO230-2:2006) | mm (inch) | Less than 0.004 (0.00016) | | |
| Front door | | | 2doors | | |
| Standard accessories | Instruction Manual (1 set), anchor bolts (4 pcs.), leveling bolts (4 pcs.), machine cover (manual door) | | | | |



CNC Machining Center BROTHER 700X1

Specifications

| Model | XY axis Table travel [mm] | UV axis Table travel [mm] | Z axis Table travel [mm] | | Wire diameter [mm] | |
|-----------------|---------------------------------|---------------------------------|--------------------------------|-----|-----------------------|-------------|
| α-C400iB | 400 x 300 | 120 x 120 | 255 | | Standard | φ0.1 - 0.3 |
| | | | | | Option | φ0.05 - 0.3 |
| α-C600iB | 600 x 400 | 200 x 200 | Standard | 310 | φ0.1 - 0.3 | |
| | | | Option | 410 | | |
| α-C800iB | 800 x 600 | 200 x 200 | Standard | 310 | φ0.1 - 0.3 | |
| | | | Option | 510 | | |



Wire-Cut EDM Fanuc ROBODUT α-C600iB

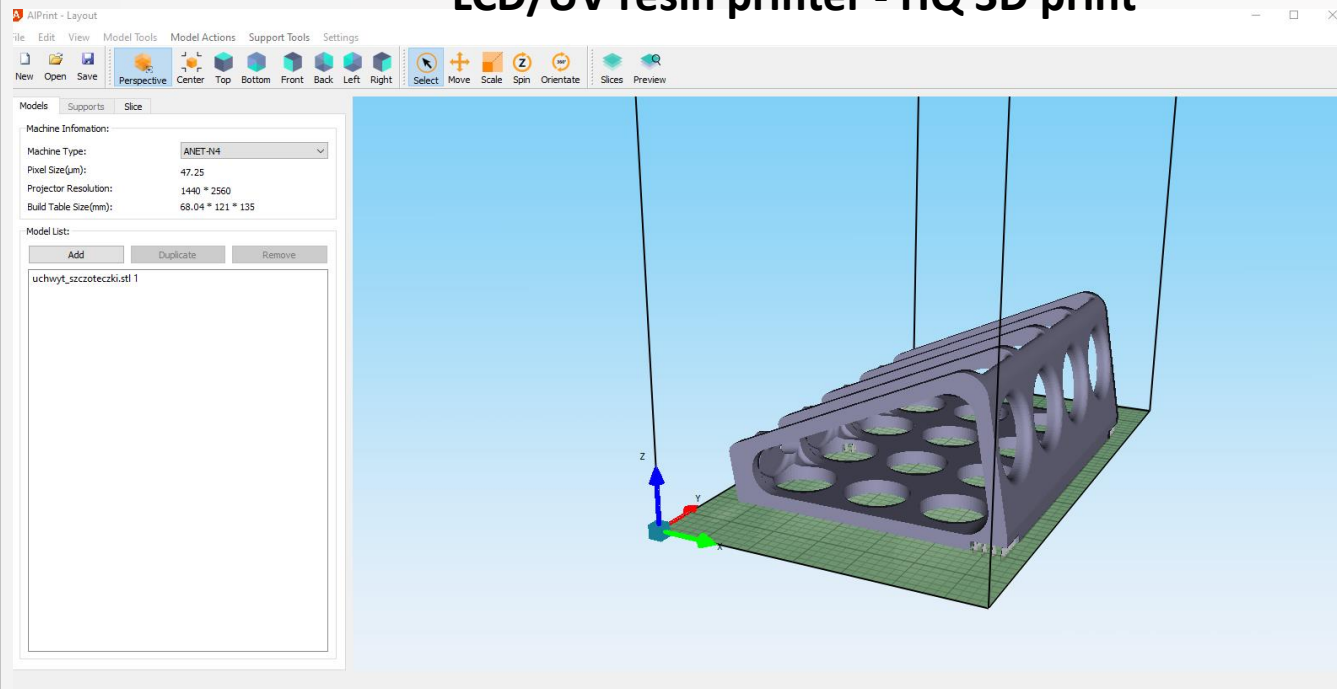
| | | | | | |
|---|---|---------------------|----------------------|----------------------|----------------------|
| Waterjet types | Waterjet KIMLA 2111 | Waterjet KIMLA 3116 | Waterjet KIMLA 3030 | Waterjet KIMLA 4121 | Waterjet KIMLA 2161 |
| | 2100 x 1100 | 3100 x 1600 | 3000 x 3000 | 4100 x 2100 | 2100 x 6100 |
| Working range (Dimensions of the cut sheet) in mm | Waterjet KIMLA 2661 | Waterjet KIMLA 3161 | Waterjet KIMLA 21121 | Waterjet KIMLA 26121 | Waterjet KIMLA 31121 |
| | 2600 x 6100 | 3100 x 6100 | 2100 x 12100 | 2600 x 12100 | 3100 x 12100 |
| Maximum cutting thickness | 200 mm | | | | |
| Pump type | Intensifier pump with ceramic plungers (Very durable) | | | | |
| Pump power | 30HP (22kW), 50HP (37kW), 75HP (56kW), 100HP (74kW) | | | | |
| Maximum pump pressure | 4150 bar | | | | |
| Pressure expanding system of the pump | Reducing the pressure on the move and after switching the pump off | | | | |
| Cutting head drive | AC Servo with digital encoders | | | | |
| X i Y axes drive | AC Servo, no backlash helical drive Güdel - Switzerland | | | | |
| Z axes drive | AC Servo, ball screw | | | | |
| Maximum running speed: oś X,Y,Z | 54 m/min | | | | |
| Range of motion in Z axis | 200, 250, 300mm, others for request | | | | |
| Allowable load on the table | 15 kN/m ² | | | | |
| Tub | 3D multi-chamber design with a very high stiffness | | | | |
| Positioning resolution | 0,001 mm | | | | |
| Abrasive grain size | 80-200 mesh | | | | |
| Abrasive feeder tank | 300, 1000 kg | | | | |
| Abrasive delivery system | Pneumatic | | | | |
| Height adjustment | Automatic | | | | |



Waterjet Kimla Streamcut 3116



LCD/UV resin printer - HQ 3D print



Technical data

Downloads

Accessories

Saw band motor output:1,1 / 1,5 KW 400V / 50 Hz

Total power installed:2,8 kVA

Saw band speed:40 / 80 m/min

Saw band dimensions:2910 x 27 x 0,9 mm

Smallest diameter:5 mm







Shortest scrap length:40 mm

Material laying height:760 mm

Dimensions:1500 x 900 x 1250 mm

Weight:345 kg

ERGONOMIC 320.250 G

| |  |  |  |  |
|--|---|---|---|---|
| 0° | 250 | 320×170 | 290×240 | 240×240 |
| 45° R | 220 | 230×140 | 200×230 | 200×200 |
| 60° R | 110 | 130×105 | 130×105 | 105×105 |
|  1,1/1,5 kW |  | | 2910×27×0,9 mm | |



Migatron Sigma 400



Lincoln Electric Invertec 400TPX



Band Saw BOMAR Rrgonomic 320

Appendix.2.

General manufacturing tolerances used for the machined features
(all dimensions are given in mm)

| | | | | |
|---|-------|--------------|---------------|----------------|
| Linear dimensions according to ISO 230-2 standard | ≤500 | >500 ≤800 | >800 ≤1250 | >1250 ≤2000 |
| Position tolerance | 0,016 | 0,020 | 0,025 | 0,030 |
| Position repeatability | 0,006 | 0,008 | 0,010 | 0,013 |

**Thank you
and we invite you to
cooperate with us.**

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