

**AVIOANE CRAIOVA S.A.**

Ghercesti, str. Aviatorilor, nr. 10, jud. Dolj

Nr. telefon/fax: 0251/402.000 /435.153

Cod de inregistrare fiscala: RO 2326144

Nr. de ordine in Registrul Comertului: J1991001214169

Identificator unic la nivel european: ROONRC.J1991001214169

Capital social subscris si varsat: 98.457.530 RON

Cod LEI: 254900R2UJFCK21TR217

Simbol pe SMT BVB AERO: AVIO

**LIST OF PRODUCTION CAPABILITIES AND SERVICES PROVIDED BY  
AVIOANE CRAIOVA S.A.**

**CAD-CAM DESIGN**

→ Computer-aided design (CAD) using CATIA V5

→ Computer-aided machining/manufacturing (CAM) using CATIA V5, TOPS 300 programs for:  
CNC milling machines,

TRUMPF center for laser cutting and punching.

**WELDING**

→ MIG/MAG shielding gas welding, Fronius source: TS 4000-4R

→ WIG shielding gas welding, Fronius source: iWave 230i AC/DC/HF; water cooled

→ Oxyacetylene welding

→ Brazing

**TURNING**

→ Processing of steel and non-ferrous materials on universal lathes with machining dimensions:  
Dmax = 400 mm, Lmax = 1500 mm, precision class IT 9.

<b>UNIVERSAL LATHES</b>	
SN 400 X 1500	Max. diameter of the turned part: Ø 400 mm Max. distance between centers: 1500 mm
SNB 400 X 750	Max. diameter of the turned part: Ø 400 mm Max. distance between centers: 750 mm
<b>PRECISION LATHES</b>	
IJ 611 P	Max. diameter of the turned part: Ø 130 mm Max. distance between centers: 500 mm

→ Processing of steel and non-ferrous materials on automatic lathes with machining dimensions: D<sub>max</sub> = 42 mm, L<sub>max</sub> = 60 mm, precision class IT 8 (No longer exists, should be removed from the list)

#### THREADING

→ External thread rolling with machining dimensions: D<sub>max</sub> = 36 mm, max pitch = 4 mm, precision class IT 4

#### PROCESSING OF STEEL AND NON-FERROUS MATERIALS ON THE SCHAUBLIN 6 TMY MACHINING CENTER

→ D<sub>max</sub> = 42 mm (automatic feed), D<sub>max</sub> = 170 mm (piece-by-piece machining), L<sub>max</sub> = 700 mm

#### MILLING

→ Processing of steel and non-ferrous materials on universal milling machines with machining dimensions: L<sub>max</sub> = 1500 mm, l<sub>max</sub> = 700 mm, h<sub>max</sub> = 600 mm, precision class IT 9

<b>UNIVERSAL MILLING MACHINES</b>	<b>TABLE DIMENSIONS:</b>
HURON	2000 x 700 mm
DECKEL	800 x 320 mm
RUHLA	1250 x 300 mm
SCHAUBLIN	1100 x 250 mm
TOS FA5B-U	2000 x 450 mm
F.U.35	1600 x 350 mm
F.U.S. 22	1250 x 380 mm

### **CNC MILLING MACHINES**

- Steel processing on 3-axis CNC milling machines, STARRAG NIV 1250, with machining dimensions:  $L_{max} = 1200$  mm,  $l_{max} = 750$  mm,  $h_{max} = 400$  mm, precision class IT 7
- Non-ferrous materials processing on 3-axis CNC milling machines, STARRAG NIV 2000, with machining dimensions:  $L_{max} = 5000$  mm,  $l_{max} = 2000$  mm,  $h_{max} = 400$  mm, precision class IT 7
- Steel and non-ferrous materials processing on 4-axis CNC milling machine EMCO MMV 2000 with machining table size: 2000X800,  $Z=750$ , precision class IT 7
- Steel and non-ferrous materials processing on 5-axis CNC milling machines UMILL 750 with machining table dimensions: 750x600, precision class IT 7
- Steel and non-ferrous materials processing on 3-axis CNC milling machines EM 1200 with machining table dimensions: 1200x750,  $Z=500$ , precision class IT 7

## DRILLING, COORDINATE BORE

DRILLING MACHINES	TABLE DIMENSIONS:	OBSERVATIONS
SIP 6 A	1000 x 840 mm	
BKOE 400	630 x 400 mm	
ACIERA 225 TA	430 x 400 mm	
DIXI 75 M	870 x 680 mm	

## EDM (ELECTRO EROSION)

→ Processing of steel and non-ferrous materials by EDM with solid electrode with processing dimensions:  $L_{max} = 300$  mm,  $l_{max} = 200$  mm,  $h_{max} = 150$  mm, precision class IT 7-

→ Processing of steel and non-ferrous materials by EDM with wire with processing dimensions:  $L_{max} = 200$  mm,  $l_{max} = 200$  mm,  $g_{max} = 75$  mm, precision class IT 7

## GRINDING

→ Grinding ext.  $\varnothing$  125 mm

→ Grinding in coordinates 500 x 700 mm

→ Thread grinding

R.U. 100	Max diameter of the grinding part: $\varnothing$ 100 mm Max. distance between centers: 600 mm
R.U. 350	Max diameter of the grinding part: $\varnothing$ 350 mm Max. distance between centers: 1000 mm

MQ 1420	Max diameter of the grinding part: Ø 280 mm Max. distance between centers: 160 mm
MR 1500 U	Max diameter of the grinding part: Ø 280 mm Max. distance between centers: 1500 mm
RPO 125	Max. working surface: 125 x 400 mm
SFRW/W.M.W	Max. working surface: Ø 630 mm
HAUSER	Dimensions of rough stock: 140 x 250 x 700 mm

→ Internal cylindrical grinding processing in coordinates with processing dimensions:  $L_{max} = 400$  mm,  $l_{max} = 250$  mm,  $h_{max} = 300$  mm, precision class IT 6

→ Surface grinding processing with processing dimensions:  $L_{max} = 1000$  mm,  $l_{max} = 300$  mm,  $h_{max} = 500$  mm, precision class IT 6

→ Internal and external cylindrical grinding processing with processing dimensions:  $D_{max} = 200$  mm,  $L_{max} = 1500$  mm for external grinding,  $L_{max} = 250$  mm for internal grinding, precision class IT 6

## CUTTING

Waterjet cutting machine – Suprema WaterJet Model DX510

Cutting surface dimensions: (LxW mm): 3350x1600

Piece cutting thickness: max. 120 mm

## SHEET METAL CONTOURING

→ By routing on the MECAPRO 3020 -- CN7000W7 machine, for aluminum and copper alloys

Working table dimensions: 2020 x 3050 mm

Maximum sheet thickness: 12 mm

→ By punching on the Trumph machine

Working table dimensions: 3085 x 1740 mm

Maximum sheet thickness (for aluminum alloys, steel, stainless steel): 8 mm

→ By laser cutting on the Trumph machine

Working table dimensions: 3085 x 1640 mm

Maximum sheet thickness:

- for aluminum alloys: 4 mm

- steel: 8 mm

- stainless steel: 4 mm

→ By combined punching and laser cutting on the Trumph machine

Working table dimensions: 2585 x 1640 mm

### **PRESS FORMING WITH FLUID CELLS QUINTUS QFC 0.7x1.8 – 800**

Working table size: 700x1830 mm;

Maximum working device height: 175 mm;

Maximum pressing force: 17000 t (800 bar).

### **PRESS FORMING WITH RUBBER CARPET MULLER 5000 TF**

Working table size: 1200 x 1800 mm

Maximum working device height: 110 mm

### **FORMING OF COVERING PANELS BY PULL – P.D.G. PRESS**

Pulling force: 250 tf

Stretching crossbar stroke: 500 mm

Inclination of the pulling crossbar: 0 ÷ 100

Opening between the sheet metal clamping devices: 0 ÷ 2200 mm

Sheet metal length: 300 ÷ 3000 mm

Inclination of the sheet metal clamping device crossbars: 0 ÷ 15o

Maximum part height: 1050 mm

Sheet metal thickness - Al alloys: 0.6 ÷ 2 mm - steel: 0.6 ÷ 1.4 mm

**FORMING ALUMINUM ALLOY PROFILES BY DRAWING ON THE DRAWING FORM  
– HUFFORD UMA75 TYPE MACHINE**

Maximum tensioning force: 3800 daN

Surface roughness of the drawing die: 0.8  $\mu$

Semi-finished product length: 300 ÷ 3000 mm

Height maximum profile: 105 mm

Profile thickness: 0.3 ÷ 3 mm

**FORMING SHEET METAL PARTS IN DEEP DIE MOULDS ON THE MULLER 400 TF  
TRIPLE EFFECT PRESS**

Working table dimensions: 1400 x 1100 mm

Stroke: 2000 mm

**FORMING PROFILES ON THE PH 150 TF PRESS**

Working table dimensions: 600 x 800 mm

Maximum distance between ram and table: 800 mm

**ROLLING FORMING OF SHEET METAL**

Maximum sheet thickness: 6 mm

Drive cylinder speed: 10 rpm

Sheet width: 2600 mm

Minimum size of the formed part:  $\varnothing$  200 mm

**FORMING SHEET METAL PARTS ON CNC ABKANT**

Bending length: 2200 mm

Useful open height: 600 mm

**FORMING/GRINDING SHEET METAL PARTS ON THE ECKOLD KF – 460 MACHINE**

Forming material thickness:

- steel: 3.0 mm

- aluminum: 4.0 mm

- stainless steel: 2.0 mm

Maximum horizontal opening: 460 mm

Maximum vertical opening: 475 mm

### **FORMING/GRINDING SHEET METAL PARTS ON THE ECKOLD KF – 470 MACHINE**

Forming material thickness:

- steel: 3.0 mm
- aluminum: 4.0 mm
- stainless steel: 2.0 mm

Maximum horizontal opening: 460 mm

Maximum vertical opening: 475 mm

### **PIPE BENDING**

→ On the Curvatubi machine, with cerobend, for stainless steel and aluminum alloy pipes with D.ext x s: 16 x 1 up to 63 x 1.25 mm bending radius at the average fiber of the pipe 50 – 200 mm, max bending moment 3200 Nm

→ On the OHA 40 machine, free or on the mandrel, for stainless steel pipes with D.ext x s: 18 x 1-2 up to 50 x 1-2 mm, bending radius at the average fiber of the pipe 36 – 100 mm

→ On the Amob machine, for stainless steel and aluminum alloy pipes with D.ext x s: up to 52 x 2 mm bending radius at the average fiber of the pipe up to 155 mm, bending direction: left/right

### **PIPE EDGES, FLARES, CRIMPING**

→ WIG-O-FLEX type edging for aluminum alloy pipes with D.ext x s: 12-50 x 1 mm

→ Flares according to standard 103AT-55 for aluminum alloy pipes with D.ext x s: 12-50 x 1 mm

→ Crimping for equipment with ARSAERO-ERMETO type elements, for stainless steel and aluminum alloy pipes with D.ext 4-40 mm

### **GENERAL ASSEMBLY (AIRCRAFT SYSTEMS AND INSTALLATIONS)**

→ Ground starting unit for aircraft type GPU-409-C-DUP-28

→ Mobile hydraulic testing unit TMH 1980C

### **HARDWARE WORKS (AVIATION STRUCTURAL)**

Metal fabrications

### **AVIATION WIRING EXECUTION**

→ Laser engraving and wiring cutting machine, type LASELEC MRO 200:

cut cable diameter: from  $\Phi 0.32$  mm to  $\Phi 4.12$  mm;

diameter of the inscribed cable: from  $\Phi 0.41$  mm to  $\Phi 5.19$ ;

## **HEAT TREATMENTS**

→ **Aluminum alloys**

### **Process: Annealing**

Equipment: ELECTRIC FURNACE

Useful dimensions (mm): 2600x850x1150

Max. working temp. ( $^{\circ}$  C): 550

Heat treatment environment: Recirculated air; Cooling in water bath

### **Process: Solution treatment**

Equipment: ELECTRIC FURNACE

Useful dimensions (mm): 2600x850x1150

Max. working temp. ( $^{\circ}$  C): 550

Heat treatment environment: Recirculated air; Cooling in water basin

Equipment: Ripoche salt bath

Semi-finished product dimensions (mm): 650 x 300 x 350

Max. working temp. ( $^{\circ}$  C): 550

Heat treatment environment: Neutral saltpeter salt: min.45%  $\text{NaNO}_3$  + rest  $\text{KNO}_3$

### **Processes: Storage (-5 ÷ -15 $^{\circ}$ C)**

Equipment: Air conditioning installation -20  $^{\circ}$  C

Semi-finished product dimensions (mm): 3000 x 1000 x 2500

Max. temp. working temperature ( $^{\circ}$  C): -20

### **Process: Carburizing**

Equipment: Vertical electric Barfield furnace

Semi-finished dimensions (mm):  $\Phi 600$  x 1300

Max. working temperature ( $^{\circ}$  C): 950

Heat treatment environment: Controlled atmosphere

### **Process: Quenching**

Equipment: Vertical electric Barfield furnace

Semi-finished dimensions (mm): Ø 600 x 1300

Max. working temperature (° C): 950

Heat treatment environment: Controlled atmosphere

**Process: Tempering**

Equipment: Vertical electric Barfield furnace

Semi-finished dimensions (mm): Ø 600 x 1300

Max. working temp. (° C): 950

Heat treatment environment: Controlled atmosphere

Equipment: INFRA salt bath

Semi-finished dimensions (mm): 300 x 300 x 400

Max. working temp. (° C): 450

Heat treatment environment: Salt; Na and K nitrites

Equipment: IRSO furnace

Semi-finished dimensions (mm): Ø 600 x 1700

Max. working temp. (° C): 450

Heat treatment environment: Recirculated atmosphere

**Process: Normalizing**

Equipment: Vertical electric Barfield furnace

Semi-finished dimensions (mm): Ø 600 x 1300

Max. working temperature (° C): 950

Heat treatment environment: Controlled atmosphere

**Process: Stress relieving**

Equipment: Stress relieving oven

Semi-finished product dimensions (mm): Ø 300 x 400

Max. working temperature (° C): 550

Heat treatment environment: Recirculated atmosphere

## **SURFACE PROTECTION TREATMENTS**

### **→ Aluminum alloys**

- Chromic anodizing – Tank dimensions (L x w x h mm) : 1200 x 800 x 800
- Spray painting – Tank dimensions (L x w x h mm) : 6000 x 6000 x 3000
- Sulfuric anodizing – Tank dimensions (L x w x h mm) : 5400 x 600 x 1600

### **→ Steels**

- Vacuum cadmium tanks (L x Ø) 500 x 200 mm
- Galvanization:
- Electrochemical cadmium tanks – Tank dimensions (L x w x h mm) : 500 x 300 x 300
- Stainless steel passivation – Tank dimensions (L x w x h mm) : 1080 x 350 x 550
- Electrochemical silver plating – Tank dimensions (L x w x h mm) : 475 x 385 x 400

## **MEASUREMENT ON 3D DIGITAL MEASURING MACHINES (C.M.M)**

### **→ 3D measuring machines:**

- DEA IOTA – 550 x 475 x 250 mm;

Accuracy 0.035 mm

- Portable 3D coordinate measuring system (Portable arm – Romer Absolute Arm)

Measurement dimensions: 2500 x 2500 x 2500 mm

Accuracy 0.034 mm

- Laser measuring system: Laser Tracker HT-960

Measurement dimensions: 20 000 mm

Accuracy 0.032 ÷ 0.096 mm (depending on the measured dimension)

## **OPTICALLY TRANSPARENT FORMATION → AIRCRAFT COVERS**

### **NON-DESTRUCTIVE TESTS**

#### **Process: Magnetic particle inspection**

Facilities: Portable yoke equipment

#### **Process: Radiographic inspection**

Facilities: SCANRAY equipment – 300 kV

## **Measurements/checks Quality Inspection**

Optical microscope

Measurement dimensions: 1260 x 1250 x 700 mm

Accuracy: 0.001 mm

Magnification: 10-14x

## **COMPOSITE MATERIALS**

### **Carbon fiber cutting machine - Gunnar**

Working surface dimensions: (LxWxH mm): 1900x1800

Positioning accuracy: +/- 0.1 mm/m

Cut material thickness: max. 2 mm

## **CONTACT DETAILS**

### **Commercial Service**

**Phone: 0251 402 000**

**Internal Phone: 200**

**Fax: 0251 435 153**

**E-mail: [office@acv.ro](mailto:office@acv.ro)**