

SPECIALIZED MACHINERY



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**SPECIAL
MANUFACTURING
SERVICES**

SPECIAL WELDINGS

FRICTION STIR WELDING CENTER

Solid-state welding process where a non-consumable tool is used to join two parts without melting the material in the parts. This allows very high joint efficiencies to be achieved in alloys where conventional welding (fusion) degrades the mechanical properties by a high percentage. For this reason, friction welding is widely used in the space, naval and military industries to weld, mainly, aluminum alloys.

Manufacturer	Nova Tech Engineering Inc.
Geometry	Longitudinal, Orbital, dome weldings
Welding Joints	Butt, Lap
Materials	Aluminum Alloys, others..
Thickness	2,4 - 13 mm (Aluminum Alloy)
Welding Length	2600 mm (max)
Tool RPM	5 rpm - 2000 rpm
Maximum Force	53400 N
Maximum Torque	450 Nm



AUTOMATIC GTAW WELDER

Manufacturer	AMI M415
Output Current range	5A - 400A
Current Shape	Longitudinal, Orbital, dome weldings
Automatic Voltage Control	5VDC - 25VDC

WELDING HEAD

Manufacturer	AMI Model 15
Wire feed speed	5 - 200rpm
Translation speed	0,1 - 20rpm

Water cooled torch



HORIZONTAL AND VERTICAL AXIS SPECIAL MACHINING

Large size machining by CNC vertical axis turning process.



VERTICAL LATHE CNC

Manufacturer	Lymco DV-3000MT
Bed Diameter	3000mm
Cone	BT 50
Programmable dividing Chuck	0° – 360°
Max. machinable diameter	3400mm
Max. machinable height	2000mm
Max. weight	22.000kg
Fixed Tool post	90°
Dividing Tool Post	0° – 90°



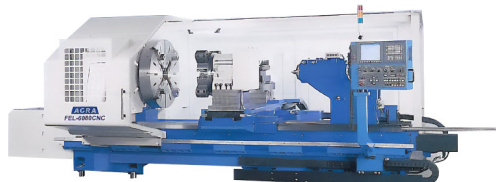
VERTICAL LATHE CNC

Manufacturer	Lymco RAL-12M
Machinable Height	1500mm
Machinable diameter	1500mm
Max. weight	6 Tn



HORIZONTAL LATHE CNC

Manufacturer	Acra FEL 6080 CN
Between centers	2250mm
Max. Ø admissible on bench	1500mm



With motorized tools for milling and holes.





WIRE CUT MACHINE

Manufacturer	Agie Charmilles CUT 30P
U-V =	+/- 50mm
Working Volume	1030x800x350mm
Max Weight	1 Tn.
X Axis	600mm
Y Axis	400mm
Z Axis	350mm

CNC MILLING CENTER

Manufacturer	HAAS VM6
Bed dimitions	L1626mm x 813mm
Max. height	762 y 300 mm
Max Power	30 Hp
Max Speed	12000 rpm
Max weight	1814kg



CNC MILLING CENTER

Manufacturer	HAAS VF3YT
Bed dimitions	L1372mm x 635mm
Max. height	749mm
Max Power	30 Hp
Max Speed	8100 rpm
Max weight	1588kg

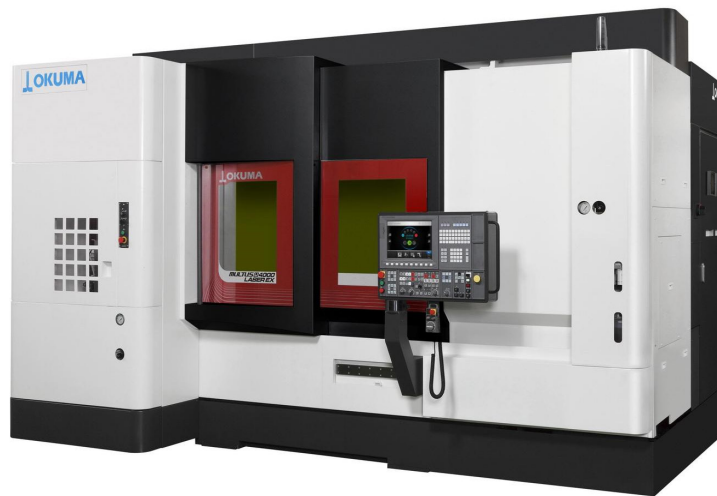
ELECTRO-EROSION MACHINE

Marca y Modelo	Agie Charmilles FORM 30
Cuba	1200x800x500mm
Max. weight	1Tn
Max Electrode Weight	100 Kg.
X Axis	600mm
Y Axis	400mm
Z Axis	400mm



DEVELOPMENT OF ADDITIVE MANUFACTURING PRODUCTS

Additive manufacturing services, ranging from state of the art 3D metal printing (DMD) to electroplating facilities. This state of the art manufacturing service allows as to develop complex metal components with a high manufacturing efficiency.



3D DMD ADDITIVE/SUBTRACTIVE METAL PRINTING MACHINE

Manufacturer	Okuma Multus U4000
Max. diameter	650 mm
Max. Length	1.500 mm
Spindle Speed	4.200 [3.000] rpm



Flexible Electroplating facility



SPECIAL HEAT TREATMENTS

High quality Brazing and Heat Treatment services in controlled atmosphere and high vacuum environment. This service ensures space industry grade quality mechanical properties and surface finish.



VERTICAL HIGH VACUUM FURNACE

Manufacturer	TAV V12
Chamber diameter	1200mm
Height	1500mm
Weight capacity	1500kg
Max. Temperature	1370°C
Vacuum Precision	±5°C. Vacío 5 x10-6 mBar
Protective Gas Shield	Ar / N 6,5 Bar
Heating Power	260 KW

Intended for welding brazing and heat treatment
of Stainless Steel and Ni alloys



PRECISION METROLOGY

Spatial quality precision metrology service and solutions, with the ability to measure and align complex parts/structures under the highest quality standards.



LÁSER TRACKER LEICA AT402

Reach	between 1,5 & 160 m (with 1.5" sphere) between 2,5 y 10 m (with B-Probe)
Resolution	angular: 0.07 sec linear arc: 0.1 μm
Angular accuracy	$\pm 15 \mu\text{m} + 6 \mu\text{m}/\text{m}$
Absolute distance accuracy	$\pm 10 \mu\text{m}$

With PolyWorks software for treatment of measurement data.

LÁSER TRACKER LEICA AT901-LR

Reach	80 m (with 1.5" sphere) 15 m (with T-Probe) 15 m (with T-Scan)
Resolution	angular: 0,14 seg de arco linear arc: 0,32 μm
Angular accuracy	$\pm 15 \mu\text{m} + 6 \mu\text{m}/\text{m}$
Absolute distance accuracy	$\pm 10 \mu\text{m}$

Scanner (T-Scan)

Field deepness	78 mm
Effective scan width	90 - 100 mm
Spots per line	hasta 1300
Min. Space between spots	75 μm

With PolyWorks software for treatment of measurement data.





TOTAL STATION SOUTH NTS 3402 R5

Scope	500m
Correction sensor	Automatic
Compensation	Double Axis

ABSOLUTE ARM ROMER RA-7530SE

Scope	3 m
Accuracy	± 44 µm (over the entire measuring volume)

With PolyWorks software for treatment of measurement data.



EDGE FAROARM

Scope	3,7 m
Accuracy	± 91 µm (volume)
Absolute Distance Accuracy	± 25 µm

ScanArm HD

Depth of field	115 mm
Effective scan width	80 - 150 mm
Points per line	up to 2000
Minimum spacing e/ dots	40 µm

ZEISS ACCURA BRIDGE-TYPE MEASURING MACHINE

Scope	1200 x 1800 x 1000 mm ³
Accuracy	± (1,7 µm + 3 µm/m)

With Zeiss Calypso software for CMM control and processing of measurement data



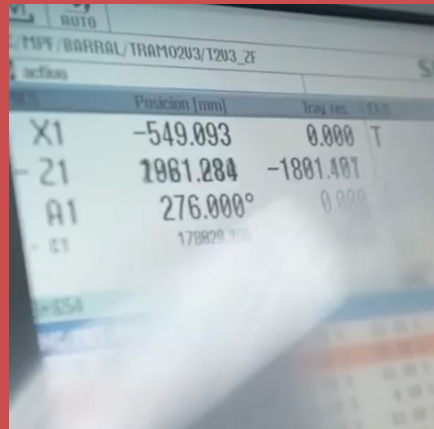
LIQUID PROPULSION ENGINE TEST AND RELATED TECHNOLOGIES

We have specific facilities, owned and operated jointly by strategic partners, to test liquid propulsion engines and development of related technologies; such as testing of propellant loading systems, instrumentation systems and special materials.



CARBON FIBER FILAMENT WINDING AND CARBON FIBER COMPONENTS

Design services and winding of composite materials. With the capacity to manufacture large pieces, of about 1500 mm in diameter and 9000 mm in length, with optimal mechanical vs weight performance.





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