



Machine Capabilities

About Paragon

Paragon D & E is a certified small business providing full-service tooling and machining with design and build capabilities. Paragon is located in Grand Rapids, MI and was established in 1959.

Paragon serves a variety of industries including automotive, heavy truck, oil and gas, aerospace and defense, marine and nuclear. Paragon is known for capabilities in very large and very accurate molds, fixtures and contract machining. Paragon also machines and CMM inspects composite and metal parts including titanium and inconel. With 50+ ton crane capacity and machines from 1 ft. to 52 ft. in length, Paragon is equipped to handle large and small projects.

Customer satisfaction at Paragon is achieved through experienced engineers, machinists and technicians as well as quality focused internal systems. Our quality is maintained through material and special process certification, incoming inspections, continuous monitoring and final inspection prior to release for shipping.

Paragon Products and Services

- Injection molding tools and tryouts
- Compression molding tools and tryouts
- Low-volume production support
- Aluminum and steel tooling
- Composite tooling
- Aerospace tooling
- Hydroform tooling
- DOD (Department of Defense) machining
- 5-axis machining of metal or composite
- Tool engineering and consulting
- Shipping and storage containers for nuclear waste
- Machining of metal components used in nuclear applications
- Contract machining
- Model shop
- 3D plate bending
- Honeycomb core crushing
- Stretchform tooling

Paragon Certifications

- AS 9100B
- ISO 9001:2008 Certified
- CCR Registered
- ITAR Registered
- NQA-1 Supplier
- ORCA
- Cage Code: 3CB75
- DD2345 US/Canada Joint Certification Program



Equipment and Plant Highlights

Some of the finest equipment in North America is housed in this 185,000 sq. ft. state-of-the-art facility. The Paragon team consists of over 215 employees working a 24/7 schedule and using the latest 5-axis and 6-axis equipment and CAD systems.



Over 35 Total Machines including:

- 1 - Double Gantry 5-axis Mill 60'x12' table size**
- 7 - 5-axis CNC Mills**
- 1 - 6-axis CNC Mill**
- 4 - Gundrills, including 1 3+2 gundrill**
- 5 - Tarus Finishers**
- 1 - Retrofitted Tarus with Fidia 3+2 head**
- 7 - Boring Mills**
- 1 - Gantry EDM**
- 1 - HPM 3,000 Ton Injection Molding Machine**
- 1 - Williams, White & Co. 3,000 Ton Hydraulic Press**





The following is a list of our equipment along with a brief description of their capabilities. Please call Paragon at 616-949-2220 to schedule a tour.



FIDIA Y2G 5 AXIS MILLING MACHINE

Control: Fidia C20 Control (X2)

Spindle:

240-24,000 RPM

85 HP

HSK 100: 14,000RPM

HSK 63: 24,000RPM

Table Size: 720" X 144" (17,000mm X 3,500mm)

Weight Capacity: Unlimited

Travel:

X - 630" (16,000mm)

Y - 138" (3500mm)

Z - 55" (1400mm)

Other Features:

M&H Digital Probe and Part Verification System

M&H Work Piece Alignment Probe

2x42 Place Tool Changer

1200 IPM Feed Rate

FIDIA K414 HI SPEED FINISHER (2)

Control: Fidia C20 Control

Feed Rate: 940 IPM

Spindle:

24,000 RPM

30-70 HP

Table Size: 98-118" x 196-198" (2489-2997mm X 4978-5029mm)

Travel:

X - 168" (4267mm)

Y - 49" (1245mm)

Z - 55" (1397mm)

Other Features:

Continuous 5-Axis Head

66-72" (1676-1829mm) Daylight under spindle

48-84 Station Tool Changer

Laser Tool Alignment

Through the spindle cooling (@ 1000 psi)

Weight Capacity: 100,000 lbs (45,359kgs)



Fidia GTFMv3

Control: C40 Fidia

Feed Rate: 1188 IPM

Spindle Taper: HSK 100

15,000 rpm

Table Size 138.0" x 86.0"

Other Features:

Renishaw RMP 600

ViMill anti-collision technology





FIDIA K199 HIGH SPEED 5 AXIS MILLING MACHINE

Control: Fidia C20 Control

Spindle:

24,000 RPM

72 HP

Travel:

X - 71" (1800mm)

Y - 35" (900mm)

Z - 33" (850mm)

Other Features:

Continuous 5-axis

24 Place Tool Changer

1188 IPM Feed Rate

Renishaw Part Probing System

Droop & Rein 5 Axis Floor Mill

Control: Fidia C20

Feed Rate: 600 IPM

Spindle:

3,000 RPM

44 HP

Table Size:

98" x 354" (2,489mm X 8,991mm)

Travel:

X - 366" (9,296mm)

Y - 145" (3,683mm)

Z - 71" (1,803mm)

Weight Capacity: 60,000 lbs (27,215 kgs)



Droop & Rein TFM 6 Axis CNC

Control: Fidia C20

Feed Rate: 1,188 IPM

Spindle #1:

Cat 50

4,000 RPM

44 HP

Spindle #2:

HSK 63 electric

18,000 rpm

27HP

Table Size:

71"x87" (1,803mm x 2,210mm)

Travel:

X - 107" (2718mm)

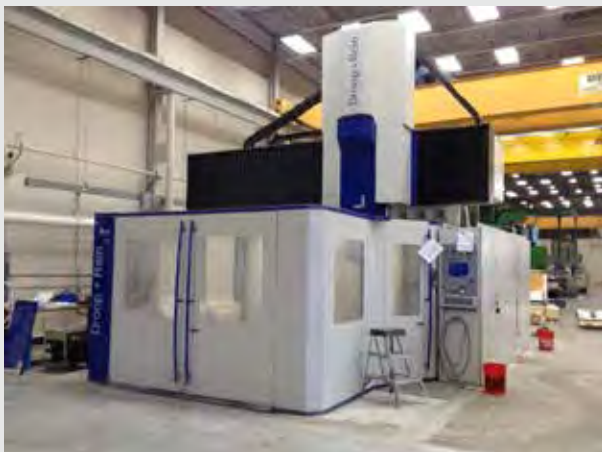
Y - 110" (2794mm)

Z - 49" (1,245mm)

Rotary Table

30 Station Tool Changer

Weight Capacity: 26,000 lbs (11,793kgs)





TARUS GUN DRILL WITH STS DRILLING SYSTEM (3)

Control: MBX 92 CNC Control

Table Size: 60" x 106" (1524mm x 2692mm)

Travel:

X - 106-130" (2692-3302mm)

Y - 60" (1524mm)

Z - 94" (2388mm)

W - 30" (762mm)

Featuring auxiliary spindles for tapping and milling

Weight Capacity: 45,000 lbs (20,411 kgs)



TARUS GUN DRILL WITH INTEGRATED MILLING SPINDLE, TILTING DRILL SLIDE AND INTEGRATED ROTARY TABLE

Control: CNC Control

Table Size: 60" X 96" (1517mm X 2438mm)

Rotary Table: 360°

Travel:

W - 46" (1168mm)

X - 130" (3302mm)

Y - 62" (1575mm)

Z - 96" (2438mm)

Featuring auxiliary spindles for tapping and milling

Weight Capacity: 60,000 lbs (27,215 kgs)

TARUS HI SPEED CNC FINISHING MILLS (5)

Control: Lemoine M6

Spindle Speed: 10,000RPM

Spindle Power: 17HP

Feed Rate: 500 IPM

Table Size: 72" x 120" (1828mm x 3049mm)

Travel:

X - 120" (3048mm)

Y - 110" (2794mm)

Z - 48" - 60" (1219mm - 1524mm)

Width Between Columns: 84"-96" (2134mm - 2438mm)

Weight Capacity: 60,000 lbs (27,215 kgs)





RETRO FITTED TARUS WITH FIDIA 3+2 HEAD

Control: Fidia C20 Control

Spindle:

240 - 24,000 RPM

Table Size: 72" x 120" (1829mm X 3048mm)

Travel:

X - 120" (3048mm)

Y - 110" (2794mm)

Z - 54" (1372mm)

B - +24° / -102°

C - +180° / -177°

Width Between Columns: 94" (2388mm)

Weight Capacity: 60,000 lbs (27,215kgs)

24 Place Tool Changer

400 IPM Feed Rate

DROOP AND REIN & TARUS CNC MILL (4)

Control: Fidia C10 Control

Feed Rate: 200-300 IPM

Spindle:

3,000-3,150 RPM

40-75 HP

Table Size: 48-60" x 96-128"

(1219-1524mm - 2438-3251mm)

Travel:

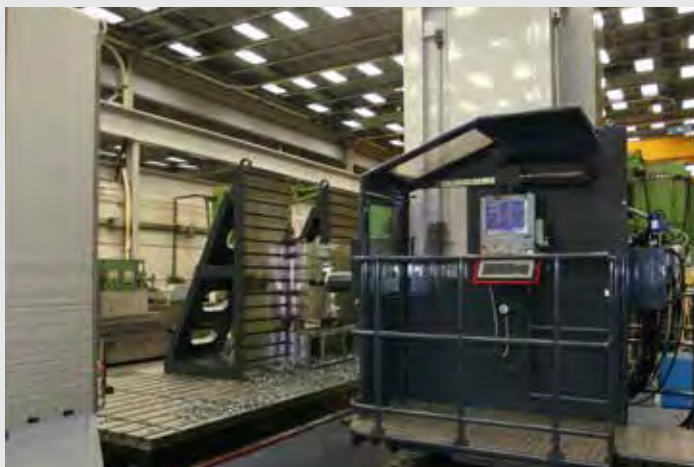
X - 96-120" (2438-3048mm)

Y - 48-60" (1219-1524mm)

Z - 48-62" (1219-1575mm)

W - 8" (203mm)

Weight Capacity: 45,000 lbs (20,411 kgs)



PARPAS ML 100 Horiz. 3D Mill

Control: Fidia C20 Control

Spindle:

4,000 RPM

Table Size: 98" x 236" (2489mm x 6045mm)

Travel:

X - 236" (5994mm)

Y - 118" (2997mm)

Z - 18" x 22" (457mm x 559mm)

472 IPM Feed Rate

Other Features:

Roughing Head

Rotating Conical Head

60 Station Tool Changer

Laser Alignment

Weight Capacity 100,000 lbs+ (45,359 kgs+)



**MAG (GIDDINGS AND LEWIS) RT 1600
HORIZONTAL BORING MILL WITH ROTARY TABLE
Control: Siemens Sinumerik 840D CNC Ctrl.
Feed Rate: 709 IPM
Table Size: 63" x 98" (1600mm x 2500mm)
Spindle:**

**3500 RPM
74 HP
6" (152mm) Bar**

Travel:

**X - 142" (3607mm)
Y - 102" (2591mm)
Z - 49" (1245mm)
W - 59" (1499mm)**

120 Position Tool Changer

Weight Capacity: 55,100 lbs (25,000 kgs)



**GL3 GIDDINGS AND LEWIS BORING MILL
MODEL 450**

**Control: Siemens Sinumerik 840D CNC Ctrl.
Feed Rate: 400 IPM
Spindle:**

**2500 RPM
50 HP
6" (152mm) Bar**

Travel:

**X - 140" (3556mm)
Y - 92" (2337mm)
Z - 48" (1219mm)
W - 47" (1194mm)**

Weight Capacity: 60,000 lbs (27,215 kgs)

**GIDDINGS AND LEWIS BORING MILL
MODEL 455**

**Control: Numeristation 8000H Ctrl.
Feed Rate: 500 IPM
Spindle:**

**2500 RPM
75 HP
6" (152mm) Bar**

Travel:

**X - 120" (3056mm)
Y - 92" (2337mm)
Z - 48" (1219mm)
W - 47" (1194mm)**

Weight Capacity: 45,000 lbs (20,411 kgs)



**TOSHIBA BTD 13 P7 PLANE TABLE
BORING MILL**

Control: Fidia C10 Control

Spindle:

25 HP

5" (127mm) Bar

Travel:

X - 157" (3988mm)

Y - 96" (2438mm)

Z - 50" (1270mm)

W - 36" (914mm)

Weight Capacity: 44,000 lbs (19,958 kgs)



**TOSHIBA BTD 11 R3 ROTARY TABLE
BORING MILL**

Control: Tosnuc 3 CNC Control

Feed Rate: 400 IPM

Spindle:

18 HP

5" (127mm) Bar

Travel:

X - 98" (2489mm)

Y - 70" (1778mm)

Z - 57" (1448mm)

W - 19" (483mm)

Through the spindle cooling (@ 100 psi)

Weight Capacity: 22,000 lbs (9,071 kgs)

**GIDDINGS AND LEWIS
BORING MILL**

Control: Siemens 800D Ctrl.

Feed Rate: 400 IPM

Spindle:

2500 RPM

75 HP

6" (152mm) Bar

Travel:

X - 216" (5486mm)

Y - 96" (2438mm)

Z - 48" (1219mm)

W - 30" (7062mm)

Weight Capacity: 100,000 lbs+ (45,359 kgs)





DVC-4025B DOUBLE COLUMN VERTICAL MACHINING CENTER

Control: YCM MXP200i

Feed Rate: 500 IPM

Spindle:

4,500 RPM CAT 50 Spindle

25 HP

Table Size: 161" X 94" (4260mm X 1500mm)

Travel:

X - 157" (4000mm)

Y - 94" (1600mm)

Z - 30" (760mm)

Other Features:

Laser Alignment

Chip Blaster DC30

Makino F5XR

Control: Pro5

Feed Rate 787 IPM

Spindle:

HSK 63 electric

20,000 RPM

15 HP

Table Size:

40.0" x 20.0" (1,016mm x 508mm)

Other Features:

Graphite machining utilization

Koma Trunion table for continuous 5 axis

Erowa compact 80 with RFID chip integration

Renishaw OMP400 for on machine verification



Makino A92

Control: Pro5

Spindle:

10,000 RPM

Travel:

X - 59" (1500mm)

Y - 49" (1544mm)

Z - 53" (1346mm)

Other Features:

Dual pallet machine

32.0" x 40.0" table size

Work Envelope 59.0" x 59.0"

Renishaw RMP 600

Weight Capacity: 6,600 lbs (2,995 kgs)

Makino F9 Vertical

Control: Pro5

Spindle:

10,000 RPM

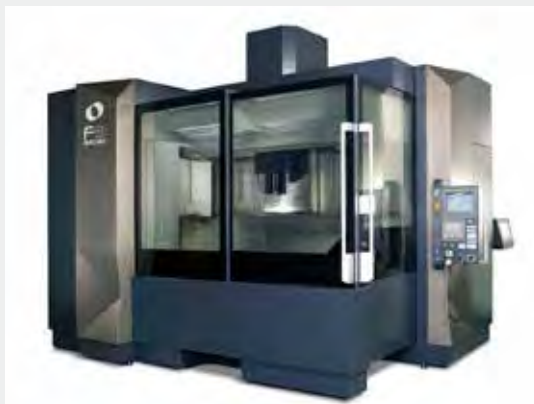
Travel:

X - 63" (1600mm)

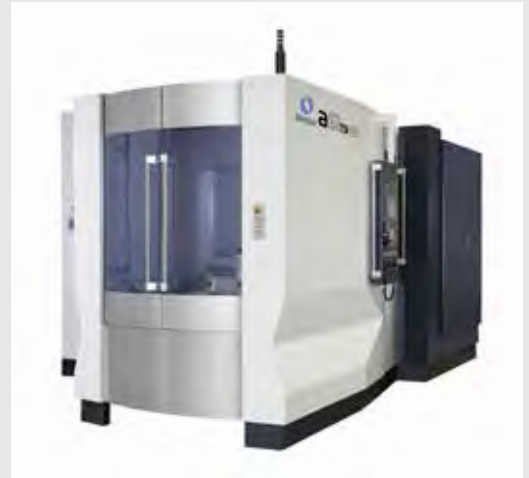
Y - 31.5" (800mm)

Z - 25.6" (650mm)

Weight Capacity: 5,511 lbs (2,500 kgs)



Makino a61 NX Horizontal Machining Center
Control: Pro 5 Control
Spindle:
14,000 RPM
133 Station Tool Changer
Travel:
X - 28" (711mm)
Y - 25" (635mm)
Z - 31" (787mm)
Through the spindle cooling (@ 1000 psi)
Weight Capacity: 1,100 lbs (499 kgs)



Gantry 2000 Sinker EDM
Control: Pro 5 Control
Spindle:
20 RPM
20 Station Tool Changer
Travel:
X - 61" (1549mm)
Y - 108" (2743mm)
Z - 39" (990mm)
Weight Capacity: 66,000 lbs (29,937 kgs)



**DEA COORDINATE MEASURING MACHINES
(DELTA 3406 CNC)**
CNC Controlled

Software: DMIS

Travel:

X - 128" (3250mm)

Y - 72" (1830mm)

Z - 54" (1370mm)

Romer Arm:

11 foot total reach

6 axis - Absolute Encoders

PC-DMIS Software

Completely portable





DAKE SPOTTING PRESSES

(300, 200, 150 TON)

300 Ton Dimensions

Height: 100" (2540mm)

Front to Back: 80" (2032mm)

Left to Right: 127" (3226mm)

200 Ton Dimensions

Height: 90" (2286mm)

Front to Back: 48" (1219mm)

Left to Right: 72" (1828mm)

150 Ton Dimensions

Height: 60" (1524mm)

Front to Back: 52" (1321mm)

Left to Right: 80" (2032mm)

**HPM 3000-400/600 MK II
INJECTION MOLDING MACHINE**
Command 90 CNC Control
8 Zone Water Mold Cooling
Valve Gate Controller
Conair Franklin Material Dryers
82 Zone Hot Runner Control



WILLIAMS, WHITE & CO.

3000 TON HYDRAULIC PRESS

Hydrostatic Leveling

Single Front Exiting Rolling Bolster

144" X 108" (3657mm - 2743mm) Die Space

Zoller Redomatic 600
Tool preset system
4-axis CNC control unit
Combined presetting, heat-shrinking and
measuring machine with tool turret, induction coil,
tailstock and cooling system.



OTHER MACHINES & EQUIPMENT

13 - DEMAG HOISTS 25-50 TONS

5 - LATHES 10"-21"

9 - MILLING MACHINES

1 - MAAS VR6A RADIAL DRILLING MACHINE

**1 - KALAMAZOO H-700 BAND SAW / HORIZONTAL / DOUBLE-COLUMN / CUTTING
WITH (H x W) 31.5" x 28" CAPACITY**

**1 - WELLSAW MODEL 1000 CUT OFF SAW
WITH 8" X 18" CAPACITY**

6 - MILLER WELDERS

5 - HI-POWER GRINDING MACHINES

2 - SG-6 UNIVERSAL CUTTER GRINDING MACHINES

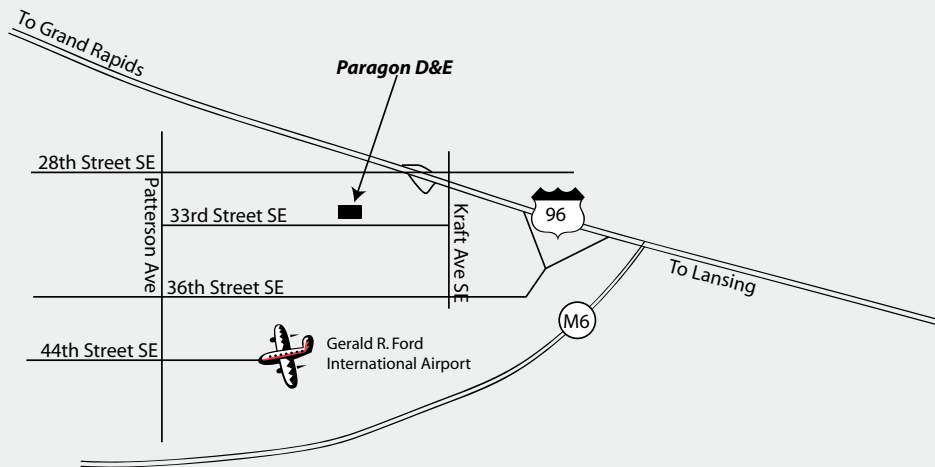
1 - CREATIVE EVOLUTIONS GRAPHITE CUTTING MACHINE

1 - HURCO BMC 50P

1 - OVEN 150"L X 68"W X 72"H

1 - MATTISON GRINDER 30" X 8' MAGNET - 98.5' TRAVEL





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