

“FOR PRODUCTS OUT OF THIS WORLD”



MANUFACTURING & ENGINEERING



PRECISION MACHINED PRODUCTS



POWILL MANUFACTURING & ENGINEERING, INC.

21039 NORTH 27TH AVENUE • PHOENIX, AZ 85027-2406
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The Powill Tradition

Since 1959 Powill Manufacturing & Engineering has been at the forefront of technological developments in manufacturing. Our organization entered the field at a revolutionary time, marked by the first hypersonic flights of the North American X-15 and the first commercial trans-Pacific flights of the Boeing 707.

Today Powill proudly manufactures precision, world-class, built-to-order components for the modern commercial and military-grade aerospace industries.

Powill's machined products reflect over half a century of experience, acquired skill and increasing complexity. The technological spinoff of former aerospace giant Sperry Corporation, Powill has steadily grown from an initial staff of 12 to a staff of 102, 80% of which are manufacturing specialists.

Our certified engineering team operates cutting-edge equipment for turning, milling, gun drilling, honing, grinding and other machining procedures, both CNC and manual. Components are manufactured out of titanium, stainless steel and inconel alloys of virtually any hardness, as well as steel, aluminum and plastic.

AS9100-certified and backed by our Total Quality Department, which follows a product from concept to completion, Powill boasts of lean enterprise and highly variable manufacturing.

The team of management and employees at Powill Manufacturing & Engineering welcomes all inquiries and encourages both prospective and long-term clients to tour our facility at their convenience.

Facilities and Portfolio

Nearly 50000 square feet of climate-controlled warehouse, manufacturing and office space at Powill Manufacturing & Engineering house some of the world's most advanced CNC equipment and CAD/CAM technology. CNC turning and milling, CNC and manual gun drilling, high-performance honing, CNC wire EDM and OD grinding, and 4-axis mill/turn procedures are performed by experienced machinery operators.

The work floor has been designed and laid out for maximum flexibility, and to ensure a fluid flow of production. Strict access controls, comprehensive monitoring, entry prevention and fire suppression systems guarantee security and safety for employees and the components they manufacture.

Our portfolio ranges from components in F-22 Raptors to Apache Longbows to Virginia class submarines, and includes multiple projects for Boeing, Airbus, Lockheed, Honeywell and Parker Hannifin.

Powill specializes in gun drilling to depths of 30 inches for hole diameters ranging from 0.125 to 1.500 inches.

Process & Work Flow

The Total Quality Department at Powill Manufacturing & Engineering oversees all aspects of the manufacturing process to assure product specification and compliance. AS9100 certification guarantees rigid, end-to-end adherence to product quality and aerospace industry standards.

Production begins by accepting a built-to-order design. Our Engineering Department employs the latest CAD/CAM software – GibbsCAM, Autodesk Inventor, Virtual Gibbs – in designing machine-calibrated components to stringent specifications. The Manufacturing Department then shapes components, which may pass through any of the state-of-the-art small and large turning centers or grinding and CNC milling centers. The Total Quality Department performs a final precision inspection before delivery.

Powill abides by the 5S methodology, which results in quality, efficiency and rapid turnaround on project orders. Our facility takes pride in its stellar delivery record.

Service is paramount at Powill. We seek open communications and constructive feedback from clients to better meet their growing manufacturing needs.



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ISO-9001:2008 / AS 9100 C Registered

Our management staff is as follows:

- | | | |
|-----------------------------------|---|----------------------------------|
| President | - | Mr. James J. Buchanan |
| Director of Operations | - | Mr. James J. Buchanan III |
| Contract Manager / Sales | - | Mr. Roy A. Buchanan |
| Contract Manager / Sales | - | Mr. Cliff Yeager |
| Production Control Manager | - | Mr. Steve Howard |
| Quality Systems Manager | - | Mrs. Luminita Krolik |
| Shop Forman | - | Mr. Kevin Wolfe |

QUALITY STATEMENT

Powill Manufacturing & Engineering Inc. provides quality products, on time and competitively priced to our customers. Powill is committed to continual improvement and compliance to all customer requirements through active management involvement, employee training and customer feedback.

Visit our web site at www.powill.com

MANUFACTURING FACILITIES LIST

CNC 3 & 4 Axis MILLING / TURNING CENTERS

- | | | |
|---|--|-----------|
| 2 | Mori-Seiki NLX2500SY/700 CNC Turning Center with live tooling and Y-axis, Subspindle, 3.1" Diameter Bar | 2016 |
| 2 | Mori-Seiki NL1500 CNC Turning Center with live tooling and Y-axis, Subspindle, 2" Diameter Bar and LNS bar feed | 2008-2015 |
| 2 | Mori-Seiki NL2500 CNC Turning Center with live tooling and Y-axis, Programmable Tailstock, 3" Diameter Bar and LNS bar feed | 2007-2015 |
| 1 | Nakamura-Tome WT-250 7-Axis Precision Turning Center with 24 stations on Dual Turrets, live tooling, 2 1/2" Diameter Bar with and LNS bar feed | 2004 |
| 1 | Nakamura-Tome SC-450-M 3 axis (Full C-axis) CNC Turning Center 12 stations, live tooling, high pressure coolant | 1999 |
| 2 | Hardinge Conquest T-42SP 1 5/8" Twin Spindle with live tooling and Har-matic Bar Feed. | 1995-1996 |

CNC TURNING CENTERS

2	Mori-Seiki NL1500 CNC Turning Centers 2" Bar Cap. & 6" chucking.	2012
3	Hardinge GS 42 CNC Turning Centers 2 with Bar Feed 1 5/8 Bar Cap. & 10" chucking.	2010
2	Hitachi-Seiki Hitec-Turn 20J (2" Bar) Live Center-One Touch Setup	1999-2000
1	Hitachi-Seiki Hitec-Turn 25G CNC Turning Center	1998
1	Hitachi-Seiki Hitec-Turn 30G Long Bed CNC Turning Center	1998
1	Nakamura - Tome Slant 4, CNC 3" Bar & 18" Chucking Cap.	1989
2	Hardinge Conquest T-42 CNC Turning Centers	1988

CNC HORIZONTAL MILLING MACHINE CENTERS

1	Matsuura H.Plus-300 19" x 22" x 19" CNC 60 Tool Changer w/automatic pallet changer, full 4 axis, 15,000 RPM Spindle, High Speed Machining	2015
1	Matsuura ES-450HII 17" x 15" x 15" CNC 30 Tool Changer w/automatic pallet changer, full 4 axis, 15,000 RPM Spindle, High Speed Machining	2000
3	Matsuura ES-450H 17" x 15" x 15" CNC 30 Tool Changer w/automatic pallet changer	1997-2000

CNC VERTICAL MILLING MACHINE CENTERS

1	Mori Seiki NMV5000 full 5-Axis CNC, 28"X20"X20" High Speed Machining, 61 Tool Changer w/ High Pressure Coolant and 20,000rpm Spindle	2010
2	Haas VF-4, 50" x 20" x 25" CNC, 40 Tool Changer, full 4 th axis	2008
1	Fanuc Robodrill MATE, 16" x 12" x 12" CNC, 14 Tool Changer, indexing 4 th axis	2006
1	Fanuc Robodrill T14iB, 27" x 15" x 12" CNC, 14 Tool Changer, indexing 4 th axis	2002
1	Matsuura MC-510VG 20" x 14" x 18" CNC, 20 Tool Changer, full 4 th axis	1997
1	Matsuura MC-510VF 20" x 14" x 18" CNC, 20 Tool Changer, indexing 4 th axis	1996

CNC GUN DRILLING MACHINES

1	Eldorado M75-30 3/4" Diameter x 24" depth Capacity Dual Spindle, CNC Control	2014
1	DeHoff 1.5" Diameter x 28" depth Capacity , CNC Control	1998

GUN-DRILLS - DEEP HOLE DRILLING

1	DeHoff 3/4" Cap. Gun-Drill 18" Depth	1981
2	DeHoff 1" Cap. Gun-Drill 18" Depth	1975-1978

CNC WIRE EDM

1 Fanuc Alpha 1iB-S/AWF 12" with Fanuc 180is-WB CNC Control 2002

CNC OUTSIDE DIAMETER GRINDING MACHINES

1 Toyoda - Select G-100II - CNC O.D. Grinding Machine 2007
11.8" dia. x 35" capacity

1 Supertec - G32-60NC - CNC O.D. Grinding Machine 2007
12" dia. x 24" capacity

1 Kellenberger - Kel-Vision - CNC Angular O.D./I.D Grinding 2005
Machine - 9.84" dia. x 17" capacity URS 125/430
GE / FANUC 18-TB Graphics Programming Control

1 Kellenberger - Kel-Vision - CNC Angular O.D. Grinding 1998
Machine - 9.84" dia. x 17" capacity RS 125/430
GE / FANUC 18-TB Graphics Programming Control

MANUAL O.D., I.D. & SURFACE GRINDERS

1 Cincinnati #2 Centerless Grinder 2003

1 Cincinnati LTC 2 - OMV Through Feed Centerless Grinder 2002

1 Kent Automatic Surface Grinder 12" X 24" 1988

1 Cincinnati Heald 276 I.D. Grinder, 16" Swing X 12" max. hole length 1986

3 K.O. Lee ID/OD Grinder 1985

2 Toyoda 8" X 16" Cap Fully Automatic O.D. Grinder 1981-1984

1 Boyer Schultz Surface Grinder 1974

1 Harig Surface Grinder 1974

PRECISION HONING MACHINES

1 Sunnen ML-3500 Power Stroked Hone Machine 2000
High-performance & high-productions, super precision honing

1 Sunnen Manual Hone 1970

MANUAL CHUCKERS

4 Hardinge Chuckers (1 with Automatic Thread Heads) 1972-1976-1980

MANUAL LATHES

1 17" Mori-Seiki Engine Lathe 1978

1 HLV-H Hardinge Tool Room Lathe 1978

1 27" Swing Tuda Engine lathe 1973

VERTICAL JIG BORER

1 #3 Moore Vertical Jig Borer 1985

VERTICAL MANUAL MILLS

1 Bridgeport 12/BR2J with Digital Readout 1994

1 Bridgeport 12/BR2J with riser 1978

3 Bridgeport 12/BR2J with Power Feed 1969-1971-1975

DRILL PRESSES

2 Burgmaster (Bench)	1980
5 Pedestal & Bench Drill Presses	1978-1987
1 Rockwell 6 Spindle	1974

MISCELLANEOUS

1 Kalamazoo Cutoff Saw 12" Cap.	1 Scherr Tumico Optical Comparator
1 Denison Multi-press 6 ton	3 J & L Optical Comparators
1 Amada Auto. Cutoff Saw 1989	3 Sweco Tumblers
3 Pedestal Grinders	1 Ultra-Sonic Cleaning
1 4' Manual Shear	

INSPECTION

All final inspection is done in our temperature and humidity controlled clean room. The below listed equipment is maintained in this room to ensure constant accuracy.

Federal Air Gages	K.O. Lee Bench Centers	
5 Sunnen Hole Gages & Sunnen Setting Fixtures	Mitutoyo Master Cera Blocks	
Sheffield Limit Gages	B & S Super Micrometer	
Plug & Thread Gages	Meter-Surf #3 Profilometer	
Scheer Tumico Height Gage	Granite Surface Plates	
J & L Optical Comparator	Master Granite Angle Plates & Parallels	
Gage Master Optical Comparator with Digital Read-out & Post Processor	Micrometers, etc.	
Starrett HB400 Comparator with Quadra-Check Read Out.....		2010

COORDINATE MEASURING SYSTEM

1 Hexagon Metrology 7.10.7 SF 28"x40"x 26" Coordinate Measuring Machine	2014
1 Brown & Sharpe Tesa-Scan 50 Plus Non-Contact Measuring System	2012
1 Brown & Sharp Global Image 7107 DCC 28"x40"x 26" Coordinate Measuring Machine	2002

SUPPORT EQUIPMENT AND SYSTEMS

- 2 User Cybernetics total Calibration System & Gage Tracker
 - 1 Speroni CNC Tool Measurement & Presetting System
 - 1 Hofmann High Speed Toolholder Balancing Machine
 - 4 Seats of Virtual Gibbs CAD/CAM on PC (2 with Solid Surfacing)
 - 6 Seats of Autodesk Inventor solid modeling software
 - 1 DNC System - 48 machine capacity- Xpert CNC Technologies DNC software
- (All systems are integrated from the tool setter, CAD/CAM, Shop System, DNC, & Machine tools.)

Our present facilities encompass the following types of work:

CNC-AUTOMATIC BAR WORK ON MATERIALS - - - - UP TO 3" IN DIAMETER.

CHUCKER WORK - - - - UP TO 21" IN DIAMETER

DEEP HOLE DRILLING - - - - 1/8" to 1 1/2" diameter x 28" deep

PRECISION ASSEMBLY / PRESSURE TEST

COMPLETE TOOLING FACILITIES

COMPLETE BURRING AND CLEANING EQUIPMENT

CNC MILLING AND DRILLING OF SMALL AND LARGE PRODUCTION RUNS

PRECISION I.D HONING

PRECISION CNC I.D/O.D GRINDING (Various sizes)

PRECISION MANUAL I.D GRINDING

PRECISION CENTERLESS THROUGH FEED (3 1/2' Max Diameter)

PRECISION CENTERLESS END FEED (3' Max Length X 6' Max Diameter)

LASER PART MARK

DOT PEEN MARKING



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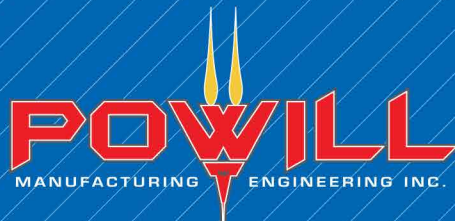


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Precision Machining | CNC Milling | CNC Turning | CNC I.D. & O.D. Grinding
Honing | Prototype Wire EDM | Gun Drilling

Certified ISO 9001:2000 / AS9100



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