

# Manufacturing Capabilities

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**Westinghouse  
Pensacola**

# Pensacola manufacturing capabilities

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	Page
<b>Machines</b>	1
Machining centers	1
Vertical machining centers	1
Vertical spindle mills	2
Horizontal boring mills	3
Horizontal lathes	4
Drills and broachers	5
Plate forming	6
Plate cutting	6
Electrical discharge and electrochemical machining	7
Grinders	7
Special purpose machines	8
<b>Metals joining equipment/systems</b>	9
<b>Heat treatment and blast facilities</b>	10
<b>Additional facilities</b>	11
<b>NDE equipment</b>	12
<b>Special inspection equipment</b>	13

## Machines

### Machining Centers N/C

Type	Quantity	Spindle Size	X-Axis	Y-Axis	Z-Axis
Carlton Ultra Center	1	6 in.	20 ft.	10 ft.	4 ft.
Giddings & Lewis, Model 4JE	1	4 in.	84 in.	60 in.	24 in.
Giddings & Lewis, Model 4JE	2	4 in.	48 in.	48 in.	24 in.

## Machines

### Vertical Machining Centers

Type	Quantity	Maximum Swing	Maximum Height	Maximum Payload	Other Features
Innocenti-Table Inside Column (removable) Outside Column	1	17 ft. 31½ ft.	21 ft. 28 ft.	330 tons 330 tons	Data input to 0.001 of one degree Right angle milling head
Morando 001-Table Inside Column (removable) Outside Column Milling	1	14½ ft. 19 ft. 22½ ft.	18 ft. 23 ft. 24 ft.	150 tons 150 tons 150 tons	Data input to 0.001 of one degree
Morando 002-Table Outside Column Milling	1	19 ft. 22½ ft.	23 ft. 24 ft.	150 tons 150 tons	Same as 001. Center column from 001 can be transferred to 002-two weeks
Morando 003	1	21 ft.	9 ft.	75 tons	Two heads for simultaneous straight turning, facing, and angle machining. Tracer attachment
Bullard Dyna Tape (N/C)	1	58 in.	48 in.	117,000 lbs.	Table size 48 in. x 48 in.
Giddings & Lewis Model 4JE	1	4 in.	24 in.	—	Table size 48 in. x 48 in.
Sunstrand/Morando VTL	1	72 in.	59 in.	10 tons	
ACME VBM	1	15 ft.	8 ft.	40 tons	Automatic Tool Changer with 12 tools

## Machines

### Vertical Spindle Mills

Type	Quantity	X-Axis	Y-Axis	Z-Axis	Maximum Weight	Other Features
Cincinnati Series 28	1	120 in.	28 in.	14 in.	10,000 lbs.	Table size: 28 in. x 120 in., Hyd. tracer 360°
Giddings & Lewis 70-NC-156	1	60 in.	32 in.	13½ in.	8,000 lbs.	Table size: 11 in. x 58 in., 40 station tool changer
Cincinnati Head Accracenter (N/C) Model 2053	1	48 in.	30 in.	15 in.	1,500 lbs.	Table size: 20 in. x 42 in., 2 spindles, contouring
Pratt & Whitney, Wolverine Club (N/C)	1	40 in.	30 in.	16 in.	2,000 lbs.	Table size: 36 in. x 83 in., 4 spindles
Giddings & Lewis - Bickford Model 986 - 15 VF	1	324 in.	72 in.	19½ in.	40,000 lbs.	Table size: 18½ ft. x 28 ft.
Cincinnati, Milacron 20 VC - 2000 3 Axis Contouring	1	80 in.	30 in.	25 in.	7,000 lbs.	Table size: 84 in. x 30 in., automatic tool changer 30 stations

## Machines

### Horizontal Boring Mills

Type	Quantity	Spindle Size	X-Axis	Y-Axis	Z-Axis	Other Features
Ingersoll 8" HBM (N/C)	1	8 in.	32 ft.	16 ft.	4 ft.	B-axis $\pm 360^\circ$
Giddings & Lewis, Model 70-H6-F	1	8 in.	16 ft.	8 ft.	5 ft.	Underarm support
Giddings & Lewis, Model H70-UF (N/C)	1	7 in.	22 ft.	11 ft.	5 ft.	Continuous path contouring
Giddings & Lewis, Model 70-HF-F (N/C)	1	6 in.	18 ft.	9 ft.	3 ft.	
Giddings & Lewis, Model 70-UF-HF (N/C)	1	6 in.	16 ft.	8 ft.	4 ft.	High pressure coolant system Underarm support
Giddings & Lewis, Model 70-H6-F (N/C)	2	6 in.	16 ft.	8 ft.	3 ft.	
Giddings & Lewis	1	6 in.	10 ft.	7 ft.	4 ft.	Portable
Milling Machines, general purpose (manual)	6	3-5 in.	Varies			Maximum table size: 13 in. x 192 in.
Milling Machine	1	3 in.	18 in.	12 in.	12 in.	Portable
Carlton	1	6 in.	20 ft.	10 ft.	4 ft.	

## Machines

### Horizontal Lathes

Type	Quantity	Swing	Distance Between Centers	Other Features
Monarch Model 32 Series 80 N/C	1	40 in.	216 in.	
Lodge & Shipley Numeriturn IV N/C	1	27 in.	96 in.	
Warner & Swasey Model CS-25 N/C Turret	1	25 in.	60 in.	
American Style D, Engine	1	23 in.	174 in.	
American Style D, Engine	1	23 in.	102 in.	
American Style D, Engine	1	23 in.	78 in.	
Monarch Model 75 N/C	1	20 in.	54 in.	Turn center with bar feed
Giddings & Lewis Model 15-U N/C	1	15 in.	72 in.	8 O.D. tools, 6 I.D. tools
American Pacemaker Model, Engine	1	14 in.	30 in.	
Monarch Model EE, Toolmaker	1	12½ in.	20 in.	
Leblond 24" Regal	1	24 in.	78 in.	5" thru spindle
Lodge & Shipley Blue Chip 21	1	21 in.	96 in.	3" thru spindle

## Machines

### Drills and Broachers

Single Spindle	Quantity	Drill Diameter	Spindle Travel	Table Size	Other Features
Carlton Model 1A radial arm	1	1½ in.	11 in.	32 in. x 54 in.	4 ft. arm
Avey Type BMA H2	1	1 in.	6 in.	25 in. x 34 in.	
Drillmation Gun Drill	1	1 in.	11 ft.		

Multi Spindle	Quantity	Spindles	Minimum Spindle Spacing	Drill Diameter	Spindle Travel	Workplate Dimensions	Other Features
Moline Multi-Spindle, N/C	1	35	3¾ in.	1¼ in.	16 in.	15 ft. x 17 ft.	
Cross, CNC	2	5	—	1¼ in.	39 in.	13 ft. x 16 ft.	Multi-Spindle Deep Hole Drilling

Broachers	Quantity Maximum	Pull Force	Maximum Pull Length	Horizontal Positioning	Vertical Positioning	Workpiece Maximum Size	Other Features
Westinghouse (special), N/C	2	15 T	52 in.	±0.04 in.	±0.05 in.	135 in. O.D. x 2 in. TK	All pitches possible

## Machines

### Plate Forming

	Quantity	Maximum Thickness	Maximum Width	Maximum Diameter	Minimum Diameter	Other Features
Rolling						
Vertical press roll bending center (N/C)	1	4½ in.	12 ft.	None	68 in.	Incremental bending
Pressing						
Punch Press - W. A. Whitney 40 ton (N/C)	1	¼ in.	—	—	—	Punching, piercing, louvering, coining, dimpling and blanking
Brake press - Pacific K600 600 ton hydraulic	1	—	14 ft.	—	—	12 ft. ram, 12. in stroke
Webb Plate Bending Roll	1	½ in.	12 ft.	144 in.	12 in.	

## Machines

### Plate Cutting

	Quantity	Maximum Material Thickness	Maximum Material Length	Maximum Material Width	Maximum Speed	Other Features
Plasma cutting-Linde Model CM-56-120	1	6 in.	240 in.	168 in.	32 in./min.	1 Torch, tracer
Tracking, Burning "Bugo" Machine	1	—	—	—	—	
Water Knife Cutting	1	5 in.	122 in.	50 in.	—	Will cut anything from glass to marble No heat input 40,000 PSI water pressure

## Machines

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### Electrical Discharge and Electrochemical Machining

Type	Quantity	Table Size	Stroke	Amp	Other Features
EDM - Cincinnati Royal Scotsman	2	30 in. x 48 in.	12 in.	100	
EDM - Ingersoll	1	24 in. x 160 in.	12 in.	100	12 multiple lead power supply
EDM - Cincinnati Scotsman	1	16 in. x 36 in.	12 in.	400	
EDM - Excello	1	7½ in. x 30 in.	6 in.	40	
ECM - Cincinnati	1	24 in. x 24 in.	12 in.	10,000	
Wire EDM - Andrew CNC 2123	1	24 in. x 12 in.	2 in.	.1 - 15.9	

## Machines

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### Grinders

Type	
Surface	Thompson 4B, 22 in. x 48 in. x 16 in. (h) Galmeyer & Livingston 8 in. x 14 in. x 10 in. (h)
Centerless	
Universal	Landis Type I-R 10 in. x 20 in.
Spherical	—
Vertical	Blanchard Model 32-60, 60 in. diameter rotary table
Horizontal	—
Cylindrical	—
Honing Machines	—
Seam Grinding	—

## Machines

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### Special Purpose Machines

Type	
Keyseaters	Davis Model no. 5; 5 in. stroke; Table size: 31 in. x 21 in.
Saws	(6) Band saws, 30 in. x 46 in. max. (2) Abrasive cut off machines, 48 in. wheel, 16 in. max. material diameter
Broaching	(2) Broachers
Buffing	Harper buffing machine

## **Metals Joining Equipment/Systems:**

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- Automatic HWGTA multi-purpose welders
- Automatic SA welders
- PA hardfacing welders
- Automatic hot wire barrel welding system
- Automatic hot wire nozzle welding system
- Automatic overlay arc welding system
- Automatic cold welding system
- Programmed pulsed TIG
- GTA longitudinal thin seam welders
- Vertical barrel welding and tracking system
- Electron beam welding system
- Flexible Laser Welding System

## **Heat Treatment and Blast Facilities**

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- A. Resistance box furnace
- B. Resistance clam shell furnace
- C. Extomet, heat treating furnace: 1125°F using ribbon type heaters  
Load Capability: Thickness - 4 in. Width - 18 in. Diameter - 92 in.
- D. Infrared gas welding preheat system: Eclipse 1,440,000 BTU double ring manifold system for heating 92 in. diameter vessel to range of 250°F to 500°F
- E. Westinghouse design bill type electrical furnace. Load Capability:  
Height - 25 ft. Diameter - 25 ft. Weight - 140,000 lbs. Maximum temperature - 1650°F
- F. Resistance finger element design for local applications. Load Capability:  
Thickness - 4 in. Width - 18 in. Diameter - 150 in.
- G. Sand Blast
- H. Shot Blast

## **Additional Facilities**

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### Metrology Facilities

- Complete facilities are available for calibration of standard measuring instruments and special gages with traceability to the National Bureau of Standards.

### Weld Development Facilities

- All welders are qualified by testing samples of their work in the laboratory. The facilities are used for training and qualifying welders to meet ASME and military welding requirements.

### Chemistry Laboratory Facilities

- These include x-ray emission and optical emission spectrographs; atomic absorption and U.V. visible spectrophotometers; carbon and sulfur analyzers; metal analysis facilities; and a wet chemistry laboratory.
- The metal analysis section is capable of testing ferrous and non-ferrous materials.

Wire, chip, and plate can be examined either by spectroscopic or wet chemical analysis.

Water is tested for total solids, conductivity, chlorides and pH analysis.

# **NDE Equipment**

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## **Radiography**

- (2) 300 KV Model MG-300 Norelco x-ray machines
- (3) Cobalt 60, 100 curie source — Tech/OPS, Model 680-664
- (2) Iridium 192, 100 curie source — Tech/OPS, Model 660-664
- (1) 4 MEV linear accelerator
- 140 KV Model M6-140B Norelco x-ray machine
- Real Time Radiography — Digitizing Existing Film
  - Filmless Technique for In-Process Inspection
  - All Radiography stored on Disk (Permanent Record)

## **Magnetic Particle**

- Magnaflux Model Y-5
- Magnaflux Model KH-15
- Magnaflux Model P-500 Mobile power pack
- Magnaflux Model KH-09 portable unit
- Magnaflux Model DA 200

## **Ultrasonic**

- Automation Industries UM-715
- Sonic Mark-1 flaw detector
- Automation Industries NOVA Model 201 digital thickness gage
- (1) Panometrics Model 5521 digital thickness gage
- (3) Krautkramer Model USM-2 flaw detector
- (1) Krautkramer (D-Meter) digital thickness gage
- (1) Krautkramer Model USL-38 flaw detector w/digital thickness gage

## **Special Inspection Equipment**

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- Sheffield Cordax 3000 with three axis display, PDP-8M computer, and 33TU printer
- Sheffield "Cordax" 5000
- Shelton Check-mate three-axis measuring machine
- K&E visual auto collimator
- Scherr-Tumico P-2500 optical comparator
- Optical tooling
- Lenox borescopes
- Electrolimit Supermicrometer (Model B)
- Surf-Indicator AD-22
- Starrett digital thermometer
- Ultrasonic digital thickness meter
- Laser interferometer
- Metal alloy tester
- Ferrite scope
- Teledyne-McKay Magne-Gage
- Pratt and Whitney 80-inch measuring unit
- Model 14 Branson Vidigage
- Metra-tech precision index head
- Sheffield Accutron N-7 Interlalchek
- Gould Surface Analyzer with computer: flatness to 1 / 1,000,000 inch
- Optical and laser measurement units
- (2) Fiber optics



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