GERDAU

Paper for the New Roll Lathe at Jackson Tn.

Scott Powell
Roll Shop

GERDAU

New Roll Lathe

- Selection Process
- Installation
- Performance

GERDAU

Control Items or Justification

- Outside Turning Cost 10K—12K per Month (120K to 144K per Yr.)
  - 75% Back
- Legacy Issues (No Parts for Old Lathes)
- Down Time

GERDAU

Machine Requirements

- Bed Length 118” (3000mm)
- Swing over Bed 39.4” (1000mm)
- Max Turning Diameter (800mm)
- Motor HP & Torque for 1” Diameter Tool (Heavy Duty)
- Controls CNC Fanuc 32i ***
- Post Processor in order to communicate to Fanuc
- Stationary Tool Post (Quick change)
- Chuck- Turn Between Centers w/ Hydraulic Jaws
- Chip Conveyor
- Tooling Package
- Spare Parts

GERDAU

Machine Builders to Quote

- Herkules
- Binns & Berry (PTG)
- Automat
- Romi
- Binns Machinery
- Dainichi

GERDAU

Subject: Request for Quotation – Heavy Duty CNC Roll Turning Lathe

Dear «First_Name»,

Gerdau Jackson Mill is in the process of specifying a Heavy Duty CNC Roll Turning Lathe for its Roll Services Shop located in Jackson TN. Preliminary quotations have been received and in order to evaluate the lathes in more detail it is necessary to have all machine builders submit quotations based on the information listed in this document.

Rolls and Pass Contours – Used for time studies, specifying tooling, performance guarantee

- Rolls
  - Roughing Mill Roll – Danieli 4.500258.R, P742 Roll Blank
  - Intermediate & Finishing Mill Roll – Danieli 4.500625.D, P736 Roll Blank
- Pass Contours
  - 0602 – Flat Edger Pass – Nodular Iron
  - 0805 – Round /Square Shaping Pass – Nodular Iron
  - 0820 – Angle Edging Pass – Nodular Iron
  - 1239 – Square Finish Pass – Nodular Iron
  - 1405 – Flat Edger Pass – Nodular Iron
  - 1535 – 5X5 Angle Finisher Pass – Steel Based Roll
  - 1626 – 1-3/4" & 2" Angle Finisher Pass – Nodular Iron & Advanced Material Roll (CPM9V)
  - 1661 – 6" Channel Finishing Pass – Steel Based Roll

    Note: Above contours represent our more challenging turnings out of our overall turning requirements as dictated by our product mix. Turning of the rolls / passes to include but not limited to face off cuts, plunge cut cycles, contouring cycles, and a finishing contour.

Offsite Visits

- Herkules
  - Gerdau Petersburg Va.
  - Gerdau Knoxville
- Binns & Berry (PTG)
  - UK Castmaster
  - UK Booth Steel
- Automat
  - Gerdau Knoxville
  - Nucor Darlington
- Romi
  - Precision Machine shop KY.
- Binns Machinery
  - Gerdau Calvert City
- Dainichi
  - Nucor Darlington

GERDAU

Gerdau Selected (PTG) Binns & Berry

PTG HEAVY INDUSTRIES
BINNS & BERRY
CRAWFORD SWIFT

Document Name: 900644/12/CC/R1
Prepared for: Gerdau Ameristeel-Jackson, TN - USA
Date 28/03/30
Page: 3 of 23

SPECIFICATIONS:

MODEL; ROLL LATHE	VERSA TURN – 1000 x 3000
BED WIDTH	**43.3"(1100 mm)**
SWING OVER BED	39.4" (1000 mm)
SWING OVER CROSS SLIDE	31.4"" (800 mm)
CROSS TRAVEL (X AXIS)	22" (550mm)
CENTRE DISTANCE (Z AXIS)	118" (3,000mm)
UNSUPPORTED WEIGHT CARRYING CAPACITY	33,000 Lbs (15,000Kgs)
SPINDLE HORSEPOWER,	**70 HP (52 kW) Continuous Power** **88 HP (65 kW) 43% Duty Cycle**
SPINDLE NOSE (FRONT)	A2:15"
SPINDLE THROUGH BORE	5.9" (150mm)
SPINDLE SPEEDS, INFINITE	1.5 – 750 RPM
CNC CONTROL (TWO AXIS)	**Fanuc O*i* TD**

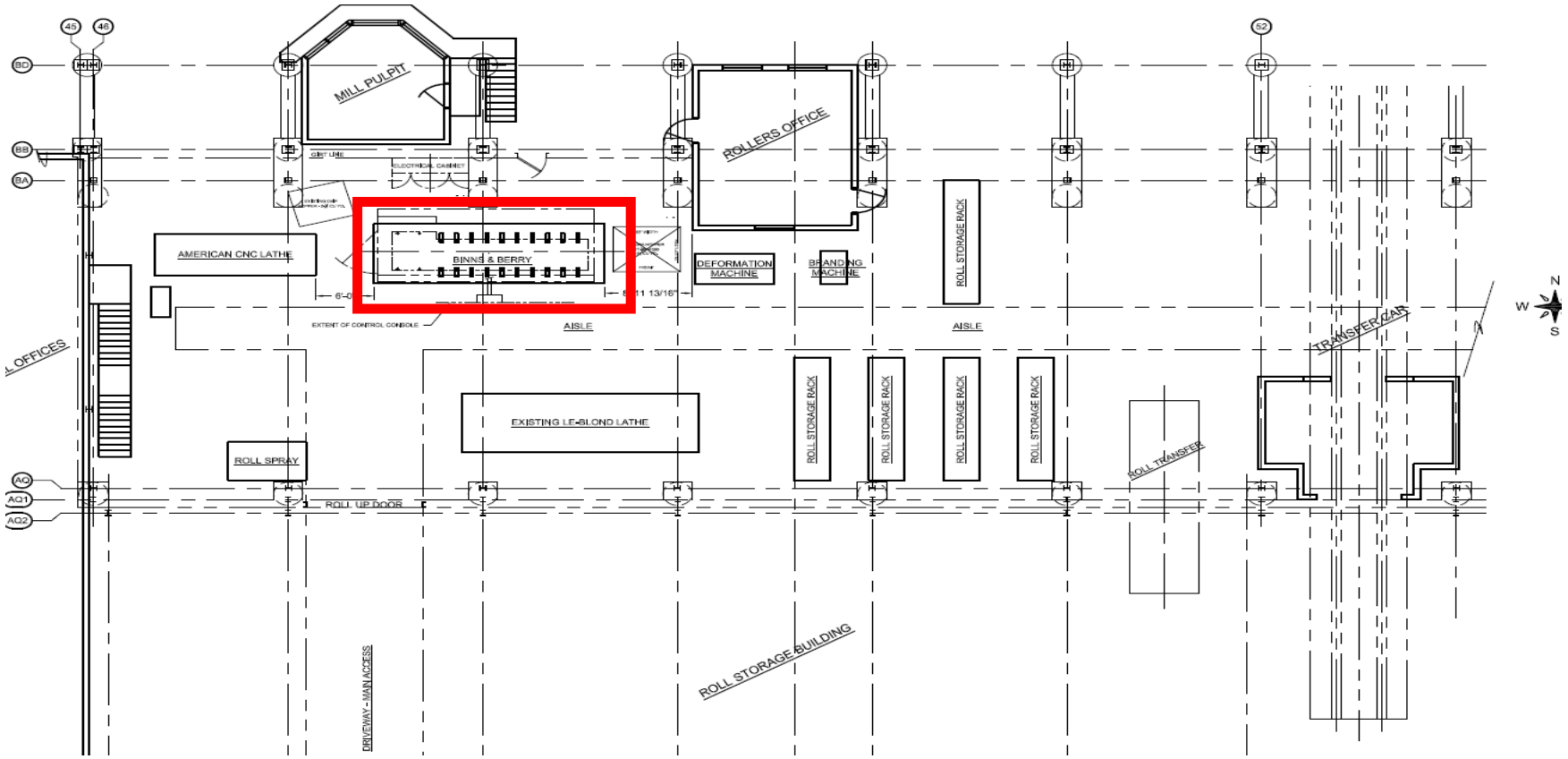
GERDAU

Install Plan

✓	**3.0 Site Clear**	**11 days**	**Thu 4/4/13**	**Thu 4/18/13**
✓	3.1 Relocate Deformation Machine	11 days	Thu 4/4/13	Thu 4/18/13
✓	3.2 Relocate Branding Machine	11 days	Thu 4/4/13	Thu 4/18/13
	4.0 Demolition	**5 days**	**Mon 6/3/13**	**Fri 6/7/13**
	4.1 Remove (breakout) existing Block Lathe Foundation	5 days	Mon 6/3/13	Fri 6/7/13
	4.2 Saw cut floor, perimeter of new foundation limit	1 day	Mon 6/3/13	Mon 6/3/13
	4.3 Breakout floors	5 days	Mon 6/3/13	Fri 6/7/13
	4.4 Excavate to new foundation depth	1 day	Thu 6/6/13	Thu 6/6/13
	5.0 Construction	**45 days**	**Mon 6/3/13**	**Fri 8/2/13**
	5.1 Lathe Foundation	45 days	Mon 6/3/13	Fri 8/2/13
	5.2 Electrical / Hydraulic Trenches	21 days	Fri 7/5/13	Fri 8/2/13
	6.0 Installation	**7 days**	**Fri 8/23/13**	**Mon 9/2/13**
	6.1 Lathe	2 days	Fri 8/23/13	Mon 8/26/13
	6.1.1 Level prior grouting	1 day	Fri 8/23/13	Fri 8/23/13
	6.2 Chip Conveyor	0.5 days	Mon 8/26/13	Mon 8/26/13
	6.3 Hydraulic Unit	0.5 days	Mon 8/26/13	Mon 8/26/13
	6.3.1 Hydraulic piping	2 days	Tue 8/27/13	Wed 8/28/13
	6.4 Electrical Panels	2 days	Tue 8/27/13	Wed 8/28/13
	6.4.1 Conduit/Wire from Distribution to Control Panels	21 days	Fri 7/19/13	Fri 8/16/13
	6.4.2 Conduit/Wire from Control Panel to Lathe	2 days	Fri 8/30/13	Mon 9/2/13
	6.5 Communication Network Connection	2 days	Fri 8/30/13	Mon 9/2/13
	7.0 Start-Up / Safety Audit	**69 days**	**Tue 9/3/13**	**Fri 12/6/13**
	7.1 Cold Commission - 10% payment after completion	2 days	Tue 9/3/13	Wed 9/4/13
	7.1.1 Operator Training	5 days	Thu 9/5/13	Wed 9/11/13
	7.1.2 Programming Training			
	7.1.3 Maintenance Training			
	7.2 Perform Arc-Flash Study	1 day?	Tue 9/3/13	Tue 9/3/13
	7.2.1 Label Panels as per NFPA 70E			
	7.3 Perform Safety Audit	1 day?	Tue 9/3/13	Tue 9/3/13
	7.3.1 Punch out deficiencies			
	7.3 Hot Commission - Sucessfully turning (8) pass profiles	62 days	Thu 9/12/13	Fri 12/6/13
	7.3.1 Final 10% payment after successful completion			

GERDAU

Area Layout

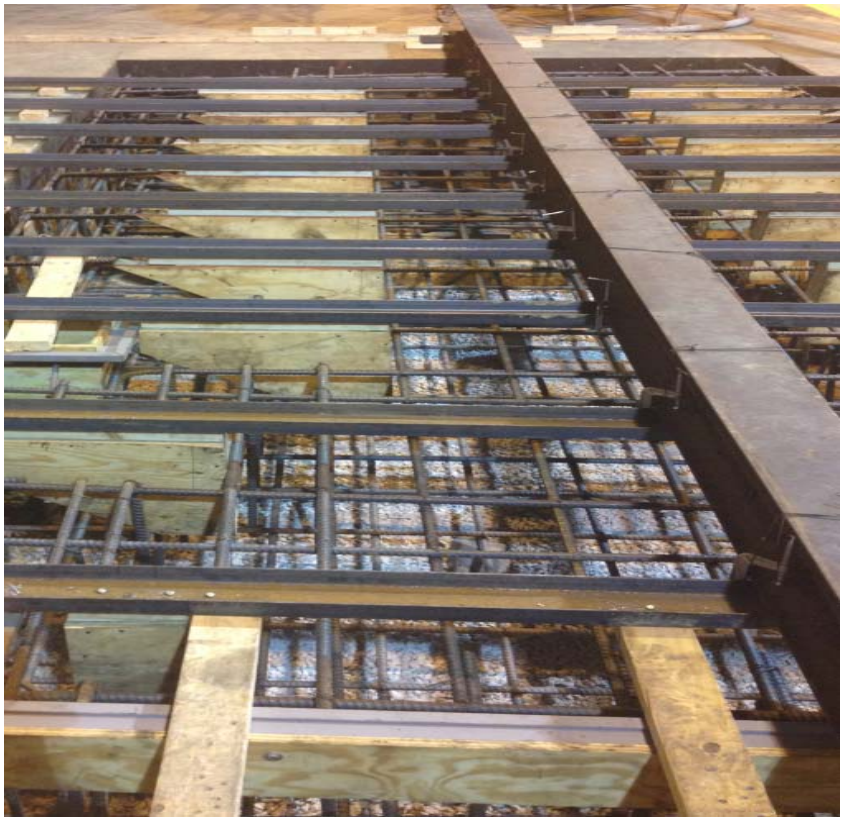


GERDAU

Groundbreaking & Foundation

GERDAU

Groundbreaking & Foundation



GERDAU

Machine Build

Lathe Bed at the Horizontal Mill

GERDAU

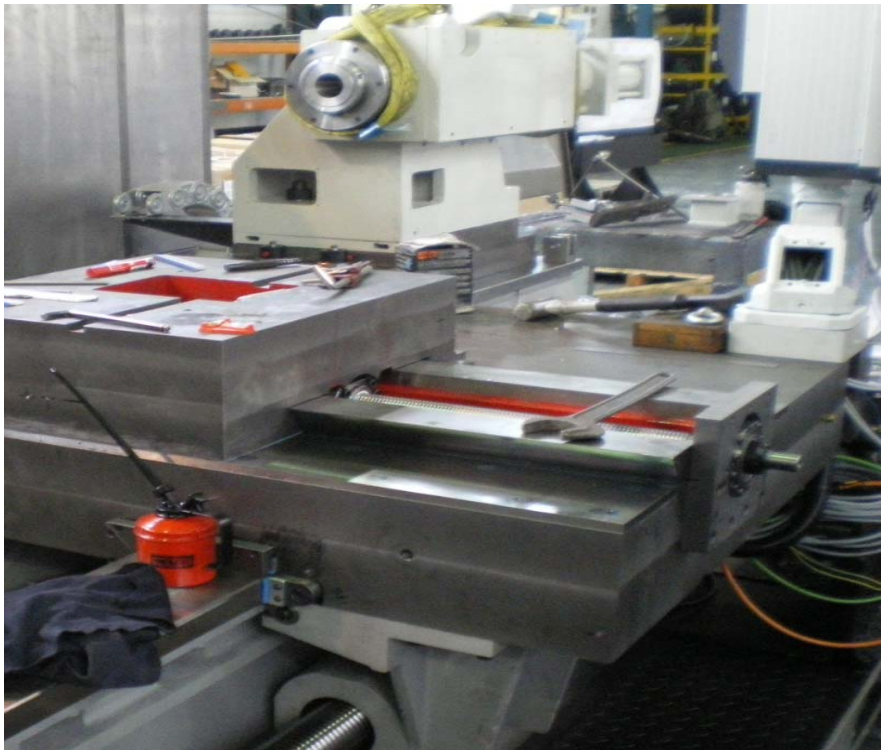
Machine Build

Bed Ways

Machining Head Stock

GERDAU

Machine Build



Ball Screws and Cross Slide

GERDAU

Machine Build Final Stages

GERDAU

Fanuc OI-TD Controller

GERDAU

Factory Acceptance Test

GERDAU

Factory Acceptance Test

GERDAU

Ready For Shipment

GERDAU

Hot Commissioning

- Performance Guarantee
- Training of Operators
- Time Studies on Profiles
- Programming of Rolls in Gibbs

GERDAU

Commission Team

GERDAU

Machine Features for the Operators

- Chip Conveyor
- Hydraulic Chuck
- Hydraulic Quill
- Chip Guard
- Gibbs Software

GERDAU

Installed At Gerdau

GERDAU

Heavy Duty Mono Block with Tooling Blade

GERDAU

Hydraulic Quill & Chip Conv.

GERDAU

Binns & Berry Performance

- **Safety Ergomics Issues**
  - No Shoveling Chips
  - Easy Install Capto Tool holders
  - Hyd. On Chuck & Quill

- **No Rolls Sent out Since Machine Install January 2014**
  - Savings of 120K to 144K per year
  - Low Maintenance

GERDAU

Binns & Berry Performance

Pros

- Strength of Compound (Mono Block)
- Quick Change Capto C-8
- Detailed alarm screens
- Chip Conveyor
- Hyd. Chuck & Quill
- PTG Reps in the US (4) for support

Cons

- Not Ready for Run-Off
  - A lot of programming to be done
- Too Much Tooling
  - Only needed 10 tools

GERDAU

Questions?

Thanks,

Scott Powell