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**PASS DESIGN  
&  
PRODUCT MODELING**

**PROJECT REFERENCE LIST**

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## **PASS DESIGN & PRODUCT MODELING**

- Test rolling in Quad Laboratory of single grouser track shoe
- Design and detail of rounds and rebar pass design.
- Roll pass design for rounds, squares, rebar, angles.
- Feasibility Study, detailed roll pass design & commissioning for slit rolling #3 & #4 Rebar.
- Detailed pass design & commissioning for roughing and intermediate trains of Wire Rod Mill for rolling from an existing and future increased billet size. Included detailed guide specification and evaluation of bids to select the highest performing guides designs.
- Roll Design assessment of wire rod mill pass design.
- Pass Design for Breakdown/Billet Mill.
- Roll Pass Design & roll barrel drawings for full Bar Mill product range
- Pass Design assessment and implemented improvements for existing C6" channel pass design to provide a more "operator friendly" section.
- Roll Pass Design for C5" channel.
- Evaluation of billet rolling Pass Design.
- Rail pass design evaluation study to improve pass life. Developed new design for increased billet size for 122CB, 132, 136 & 141 lb/yd Rail
- Developed pass design, commissioning and operator training for universal rolling of 12" to 6" Channel and W12 to W4 Beams for a relocated used mill.
- New product capability analysis for entire product range of structural mill rolling angle, channel, beams and flats from 3" thru 12".
- Complete pass design, roll barrel drawings for CAD/CAM lathe and commissioning for a new Danieli 18 Stand Bar Mill. Product range included 1/2" – 2.5" rounds, #4 - #18 rebar, 5/8"-1.5" squares, 1" – 4" angles, 3"-6" channels and 1"-6" flats.
- Pass Design for range of small angles 1" x 1" up to and included 2" x 2"
- Feasibility analysis of rolling 2.5" channel @ 3.05 lb/ft on an existing bar mill Analysis included: pass flow chart, Rolling Mill Simulation, calculation of roll separating forces, roll stresses and capability assessment of existing spindles, gearbox and motors to handle torque requirements.
- Feasibility analysis on pass design for beam rolling for new mill rolling from a near net shape beam blank.
- Design and supply of mill guides for rolling special structural M and H Sections
- Detailed pass design for 4 sizes of MC channel

- Pass design modifications for a variety of small flats & rounds on a Bar Mill
- Complete pass design and detailing of passes and rolls for W6” - W12” beams.
- Pass design & physical modelling trials of new pass design concept to produce W8”, W10” and W12” beams from same one roughing sequence.
- Design entry & delivery guides for W10"x12, 15, 17, 19# beams
- Design & detail entry guide inserts for 5", 6", 7", 8", 9" & 10" channels
- Pass design feasibility analysis for 26” reversing mill to roll large rounds
- Pass and guide design for small channel in a continuous specialty section mill.
- Roll pass design & physical modelling trials for diagonal/universal 4" x 3.2# beam.
- Feasibility study, pass design, equipment supply of guides and inter stand conveyors for special "half arrow" product shape.
- Complete detailed pass design & commissioning for Bar and Structural mill rolling eight (8) product section groups including flow charts, roll barrel layouts, rolling mill simulation and setup sheets. Products included Rounds, Rebar, Squares, Flats, Equal Angle, Unequal Angle, Channel & Beams,
- Feasibility study, detailed pass design, physical modelling trials at Quad Laboratory Testing Facility and verification of physical properties for producing a range of sucker rod product on a specialized SR mill.
- Pass design, roll barrel drawings and commissioning of complete new pass designs for a wide range of structural products including flats, rounds, angles and channels for a 3hi cross country mill.
- Design & supply of specialized guides for 29" 3-hi Breakdown Mill Stand for roughing structural sections.
- Engineering study and detailed pass design solution for eliminating roughing mill induced defects on a Rod Mill.
- Both modified and new pass designs for a Special Sections Structural Mill producing standard & wide flange beam products.
- Roll pass design for new 60 kg/m UIC rail.
- New roughing and intermediate stand pass design to ease overloads and rebalance loading on these stands.
- New pass designs for 5" and 6" flats.
- New pass designs for 1 ¼” to 2 ¼” round cornered squares.
- New pass designs for equal and unequal bar size angles to improve pass wear and reduce cobbles

- Complete pass design services to eliminate ovals in certain stands and to head two round passes instead of three into one stand. Services also included pass designs to increase slitting pass life for #3, 4, and #5 rebar
- Roll pass design to improve dogbone shape exiting breakdown mill for reducing the number of roll sets needed to roll 8" thru 27" WF beams.
- Detailed pass design & commissioning of C4" thru C8" channels utilizing universal finishing.
- Roll pass design & commissioning for 2x2 and 3x2 angle at various leg thickness.
- Pass design for slitting #6 thru #8 Rebar on a structural mill.
- Pass design analysis for 1/2" Round to increase pass life and reduce cobble rate
- Roll pass design services for unequal Angle, 5"x3"x1/4" to 1/2"
- Detailed pass design & commissioning for rolling of titanium bars.
- Pass design services for rolling of titanium ingots.
- Pass design modifications to improve rolling and product quality of UIC 54 rail.
- Complete detailed pass design & commissioning of UIC 60 rail.
- Detailed pass design & commissioning for SBQ large rounds 3" thru 6".
- Engineering services for pass design evaluation at a newly acquired bar mill
- Roll pass design for rounds and rebar etc.
- Complete pass design for parallel flange channels (Australian standard), 150PFC 125PFC, 100PFC, and 75PFC.
- Complete evaluation, pass design modifications, new finishing pass design, setup sheets and commissioning for Large Rounds Products Mill re-startup
- New pass designs to expand product range for a Large Rounds SBQ Mill including 2" thru 2-3/4" rounds, 2-1/2 thru 3-5/16" round cornered square, 10-1/2" Round, 12-1/4" round and 9" x 9" square
- Roll pass design of standard pass progression in Small Structural Mill to implement rolling of 4" x 3.2 lb/ft specialty beams.
- Roll pass design for improving roughing mill operation in a Bar Mill.
- Feasibility study and consulting on pass design and process for rolling lightweight beams and on problems associated with 6" x 4" beams.
- Roll pass design for small bar mill in a two-phase Mill improvement project.
- Roll pass design & commissioning services for adding 13", 15" & 16" rounds to a SBQ Large Rounds Reversing Mill.
- Roll pass design analysis, detailed pass design & commissioning for various sections for rail slitting mill including #3 slit rebar, for bed frame angle 1.50 x 1.50 x 0.102 and 1.27" x 1.27" x 0.094", fence post 1.25 lb/ft and 1.33 lb/ft,

- Feasibility study, detailed pass design and rolling trials for a new slitting process where rail is slit into 2 pieces, instead of the traditional 3 pieces.