


Bending and Rolling Steel

Company	Products Offered	Product Descriptions
A-1 Roll Company www.a1roll.com 586.783.6677	Structural steel bending and rolling, plate rolling, tube bending, and aluminum extrusion forming	A leader in supplying rolled structural shapes. Specializes in putting radii in angles, bars, beams, channels, rails, pipes, tubes, aluminum extrusions, copper, brass, and conveyor curves. Quality products and services and quick turnaround time.
Advanced Fabricating Machinery www.advancedfab.com 603.642.4906	Stierli benders	With capacities up to 440 tons, Stierli hydraulic ram benders use a unique quick-change tool system to bend flat stock, tubes, and bars, as well as camber beams.
	Ineco bending machines	Ineco rotary draw benders are portable and provide the capability to bend up to 3" OD tube or 2.5" pipe, making them ideal for fabricating handrail and other bending jobs.
	Transfluid bending machines	For mandrel tube or pipe bends, Transfluid machines provide the necessary rigidity and precision to make bends as tight as 1.5D, using a unique tool plate design.
 Albina Pipe Bending Co. www.albinapipebending.com 866.252.4628	Pipe bending, forming, and fabrication	Ability to bend architecturally exposed material ranging from 1/8" - 26" OD. Processes include rotary draw, roll, and increment bending (hot/cold).
	Square and rectangular tube bending, forming, and fabrication	Ability to bend architecturally exposed material from 1/2" up to 20" tubing (easy way, hard way, compound, or off-axis).
	Structural steel bending, forming, and fabrication	Ability to bend architecturally exposed material including: angle, flat bar, square bar, wide-flange (I-beam), channel, plate, and split tee, etc. (easy way, hard way, or off-axis).
	Spiral bending	Architectural exposure-quality spiraling of tube steel, channel, plate, and pipe to amazingly tight radii and steep pitches.
Bendco www.bendco.com 713.473.1557	Structural profile bending and pipe bending	Tools for meeting complex and innovative architectural applications. Before constructing your next stadium, ballpark, airport, hotel, etc., contact Bendco for cold or induction bending.
 BendTec, Inc. www.bendtec.com 218.722.0205	Bending and fabrication	A leader in bending and fabrication for projects involving curved architectural and structural members. AISC Certified for conventional steel building structures, simple steel bridges, complex steel building structures, and major steel bridges. Products include roof trusses, parabolic arches, Vierendeel trusses, long radius bends, light/power poles, signs, bridge arches, park benches, and window mullions.
Bertsch, division of Mega Fabrication, Inc. www.bertschrolls.com 800.338.5471	Four roll plate rolls	Designed for production customers, its advantages include single pass prebending and rolling without removing plate for improved throughput, ease of use, and available CNC controls.
	Three roll double pinch plate rolls	Allows operator to prebend both sides of the plate without removing the material. Requires the most operator skill as the material is never completely pinched in the machine. Designed for some job shop applications.
	Three roll initial pinch plate rolls	Initial pinch allows prebending to minimize flat. Its geometry allows for accurate roundness in a minimum number of passes. Designed for most job shop applications.
	Section and angle rolls	For 30 years, Bertsch has been building heavy duty section and angle rolls. Versatile enough to handle many shapes and profiles, these machines are a must for any structural shop. Double pinch design minimizes flat on ends of material.
Cal Pipe www.webendpipe.com 800.225.7473		Commercial and job binding for heavy industrial, architectural construction, OEMs, refinery, and chemical industries. Bend pipe, tubing, rectangular tubing, square tubing, angles, beams, channels, plate, spirals, stringers, and coils.
 Chicago Metal Rolled Products Co. www.cmrp.com 800.798.4504	Roll-curving standard structural steel shapes	Every size of angle, bar, channel, and tee as well as beam up to W44x285 the hard way (x-x axis) on the world's largest beam bender.
	HSS bending	Tube and pipe up to 20" OD, from tight bends (2 x the OD of the pipe) to large sweeps. Square tubing up to 16." Rectangular tubing up to 20" x 12." Low-deformation, thin-wall bending to keep members light in weight-sensitive applications.
	Special rolling	In addition to single-radius bending in one plane: rolling off-axis and multi-axis bends; multi-radius bends; true, helical coils; and plumb, circular, stair stringers. Hard-way, easy way, and every way in between!™
	Roll-curving of formed shapes and extrusions	Strut and other formed channels, formed angles, hat sections, etc. Aluminum extrusions to create arches and bows on curtain-wall and store-front systems.
Clayton Industries www.claytonind.com 205.715.2000		Supplies a range of industries with a variety of services. Large equipment capacities allow Clayton to roll beams as large as 44", form plates on a 1,000-ton, 40' press brake, and roll plate as thick as 6" x 14'. Clayton also has a full-line machine shop, with large CNC lathes and mills.

Blue denotes AISC Associate Member benders and rollers.

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 Comeq, Inc. www.comeq.com 410.933.8500	Angle bending rolls	Double-pinch type angle bending rolls. Seven models with two-directional hydraulic guide rolls with capacities to 5" x 5" x 5/8", and 15 models with multi-directional hydraulic guide rolls with capacities to 10" x 10" x 1".
	Plate bending rolls	Three-roll and four-roll double-pinch type plate bending rolls. Fully hydraulic with capacities from 16 ga. to 4" thickness and lengths from 2' to 30'. With or without CNC controls.
	Pipe, tube, and section bending rolls	Angle bending rolls with special rolls and equipment. For rolling angle leg-in and leg-out; stems leg-in, leg-out, and leg-down; flat bars, square bar, round bar, pipe, tube, and channels.
	Beam benders	Fully hydraulic models with "Section Modulus" capacity up to 1,000 in ³ . Capacities to 44" beam and channel, 14" pipe, 16" round bar, 15" square bar, and 24" flat bar.
E.G. Heller's Son, Inc. www.hellerson.com 800.233.0929	Four roll plate bending machines	Introduced by Heller's in the 1980s. Material is captured during the rolling cycle, thereby eliminating material slippage and time-consuming realignment of the plate. System is ideal for rolling cones. No more bumping on a press brake or the expense of material handling.
	Precision section bending machines	A must for rolling HSS, structural, or extruded shapes. Using a three-drive planetary drive system ensures 99% power to all three shafts, as each motor is hydraulic and independent. Torque is where you need it: at the shaft.
 Greiner Industries, Inc. www.greinerindustries.com 717.653.8111	Rolling and bending	I-beams up to 40" the easy way and 24" the hard way. Tubing up to 26" by 16" or 20" square and pipe up to 20" diameter.
	Blasting and coatings	81,000 sq. ft state-of-the-art facility with 100-ton "four-point pick-and-carry" crane system. AISC Sophisticated Coatings Endorsement and SSPC-QP3 certification for the application of protective coatings.
	AISC Certified structural steel fabrication	ASIC Certified for major steel bridges and complex steel buildings with Fracture-Critical and Sophisticated Paint Endorsements. Specializing in the fabrication of large trusses, plate girders, and heavy structural steel columns.
	Machining	Large CNC horizontal boring mill with 12' by 30' machining envelope. CNC gantry type machining center with 10' by 10' bed. Specializing in heavy base plates and large splice plates.
 Hodgson Custom Rolling, Inc. www.hodgsoncustomrolling.ca 800.263.2547	Heavy-plate rolling and forming services	Heavy-plate rolling and forming services for multiple industrial and commercial applications. Rolls structural shapes, including stringers for spiral staircases. Forming steel and steel products, Hodgson produces cones, component parts for heavy equipment, and one-of-a-kind heavy-plate fabrications. Rolling steel plate up to 7" thick, processes cylinders, rings, hoist drums for cranes.
Iwatani International Corp. of America www.iwatani.com 201.585.2442	Kurimoto plate bending machine	A three roll machine that uses a movable top roll to perform almost 100% complete end bending on the leading and trailing edge. The top roll automatically moves vertically and horizontally to position itself throughout the bending process—the operator just needs to feed the plate into the machine. Crowning of the top roll, along with backup rolls for the bottom rollers, produces perfect circularity.
 Kottler Metal Products, Inc. www.kottlermetal.com 800.678.0808	Structural steel bending	Capacity to form up to 40" channel/I-beam, both easy/hard way, 20" tube and pipe, with minimal distortion, to the highest architectural standards.
	Pipe bending	Capacities include mandrel bending of pipe and tube up to 12" and roll bending of pipe and tube up to 20", round, square, and rectangular with minimal distortion.
	Plate bending	Plate bending capacities with ability to bend up to 1.00" thick, in cylinders and conicals.
	Rotoform	Rotoform capacity with ability to bend up to 12" round pipe and tube, as small as three times the diameter, and multiple radii.
 Kubes Steel, Inc. www.kubesteel.com 877.327.8357	Structural and section rolling	Beams: easy way to 40", hard way to 27". HSS: to 16" x 16". Channel: to 18", both ways. Angle: to 8" x 8" x 1-1/4" both ways. Tee: to 18", all three ways.
	Plate rolling and forming	Plate rolling to 10' width, forming to 14' width. Pyramids, cones, transitions, ellipses, and special sections for section rolling.
	Pipe rolling and forming	To 20" diameter. Two axis, three axis, helical, coils.
	Beam cambering	Roll cambering and straightening to 36" section depth.
Mark IV Metal Products, Inc. www.markivmetal.com 800.663.4760	Tube bending and manufacturing	Bends round, square, and rectangular tube, ranging from 5.8" OD to 6" OD. Complete manufacturing capabilities such as welding, drilling, laser cutting, cutting, end forming, and much more.
 Marks Metal Technology www.marksmetal.com 800.526.1031	Profile rolling	Custom rolling to meet special requirements. Angle, beam, channel, flat bar, pipe, rail, and tees.
	Plate rolling	A wide range of plate rolling solutions and capacities; exacting standards in roundness, dimensional accuracy, and repeatability. Weld preparation, TIG, MIG, and Sub-Arc.
	Diamond Curve	Curving of wide-flange beams using exclusive Diamond Curve™ technology.
	Custom fabrication	Circular stairs and specialty fabrication: food processing equipment, conveyor systems, machine frames, special fabrication, handrails, ducting, signs, trusses, exhibit components.

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 Max Weiss Co., Inc. www.maxweiss.com 414.355.8220	Rolled and formed curves of structural steel	Rolled and formed curves of structural steel of all sections. Irregular curves, offsets, tight radii, and minimal distortion in HSS; ideal for AESS applications. Engineering advice for your inquiry.
	Hot forming and forging	Hot formed and forged brackets, clamps, fasteners, bearing supports, parts, and tools of many designs. Heavy equipment and farm equipment repair; parts and tools in various alloys. Basic machining and threading capabilities.
	Custom welding and fabricating	Custom welding and fabricating for the contracting and construction industry. Lintels, rings, bases, supports, columns, hoppers, and conveyor sections are common applications. Stainless steel a specialty.
N.J. McCutchen, Inc. www.njminc.com 209.466.9704	Bar rolling	Experienced staff, state-of-the-art equipment, and attention to detail allow us to meet the specific steel rolling needs of our clients.
 Oakley Steel Products Co. www.oakleysteel.com 888.625.5392	Shaping, bending, and forming	Custom shaping, bending, and forming of steel since 1921. State-of-the-art facilities and an extensive line of equipment provide the vast capabilities required to meet virtually any forming need. Multiple locations effectively serve customers across the country in a timely manner. Consistent high caliber products to exacting specifications, on time and in budget from coast to coast.
Pedrick Tool & Machine Co., Inc. www.pedrick.com 856.829.8900	Rotary compression bending machines	Pedrick benders are used to bend a variety of materials: pipe tube (round, rectangular, and square), solid barstock (round, rectangular, easy way, and hard way), roll-formed sections and extrusions.
Shaped Steel, Inc. www.shapedsteel.com 866.781.5717		Plate to 6" thick; structural tubing to 20"; W24" hard way; W36" easy way. Shaped Steel, Inc. handles everything from small structural sections to some of the largest sections produced. Products for small to large jobs, and across numerous industries.
Stewart Engineering & Sales Co. www.steweng.com 231.767.2140	Beam rollover	Portable 10-ton and 20-ton units for positioning straight, tapered, or curved beams and girders.
Tulsa Tube Bending Co., Inc. www.ttb.com 888.882.3637	Cold rolled round, square, and rectangular pipe and tube bends	Cold bending of square, rectangular, and round pipe and tube up to 16" outside diameter.
	Heat induction bends of round, square, and rectangular	Heat induction bends of round, square, and rectangular up to 28" outside diameter, up to 3" wall thickness between 1 to 180°.
	Helical and spiral coils	Helical and spiral coils up to 8" international pipe size, produced to ASME Code.
 WhiteFab, Inc. www.whitefab.com 205.791.2011	Rolling or bending structural sections	Rolling or bending structural sections thru 27" beams hard way. Patented process reduces distortion on thinner, tighter radii sections.
	Rolling or bending square and rectangular tubes	Rolling or bending square and rectangular tubes up to 20 x 12, hard way or easy way. Patented process reduces distortion on thinner wall, tighter radii sections.
	Plate shearing, bending, or rolling	Cut to length line, 1000 ton brake, 1/2 x 20' shear. Can form many complex bends.

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Product Case Study

Five years before completion of Jay Pritzker Pavilion at Chicago's Millennium Park, AISC member Chicago Metal Rolled Products began consultation with the project's engineers at Skidmore, Owens and Merrill (SOM) about curving HSS steel pipe for the music pavilion's Frank O. Gehry-designed trellis.

Gehry's design called for 570 tons of pipe curved in two planes with multiple radii. Chicago Metal suggested that each arch be curved in one plane and that the radii—ranging from 100' to 1000'—change at each arch's four nodal junctions. Chicago Metal used a three-roll bending machine with a capacity of 180 in³ section modulus, one of a few machines in the country with the tooling to bend these pipes cold. Adapting to an accelerated schedule, the company delivered everything on time.

Jay Pritzker Pavilion Trellis—Chicago Metal Rolled Products



Photo courtesy Chicago Metal Rolled Products.

The project's fabrication required AESS quality. The precise rolling of Chicago Metal, combined with the specialty fabrication of AISC member ACME Structural, overcame the difficulty of shop-fitting 130 curved and welded TYK joint connections.

The trellis had to perfectly connect to the steel-clad, curvaceous "ribbons" that adorn the stage. At 625' long, 325' wide and 60' tall at its highest point, a complex web of 12, 14, 16, 18, and 20"-diameter curved and intersecting HSS pipe now holds speakers for the pavilion's computerized sound system and covers an area large enough to accommodate an audience of 11,000.

Read more about Jay Pritzker Pavilion in this month's Engineering Awards of Excellence coverage or in "Music in the Park" from the August 2004 issue of *MSC* at www.modernsteel.com. ★