

SERIES 3000 Double Pinch *Angle Rolls*

The Industry Standard for a...

**New Generation
of Highly Efficient
and Versatile
Machines with
Unparalleled
Standard
Features**



FABRICATING MACHINERY

Real Quality is Always
Found in the Details.
Compare for Yourself,
Then Choose.

FIFTEEN MODELS

Capacities
from 1" to 10" ANGLE

***The Ideal Choice
for All Applications!***



3000 SERIES

Double Pinch Angle Rolls

15 MODELS 1" TO 10" ANGLE

FEATURES

- Three driven rolls, smooth surfaced for optimal profile traction and surface finish
- Double Pinch Geometry permits pre-bending without removal from the machine
- Dual LED Digital Displays / Emergency stop
- Monolithic single weldment frames heavily reinforced at load points.
- Detached mobile control stand, low voltage controls
- Horizontal/vertical operation on models 301 thru 309
- NiCrMo Bending rolls hardened for optimal performance
- Top roll drive incorporates overload protection which allows differing roll speeds when bending tall sections
- Variable speed hydraulic drive train 306 - 315 with direct coupled hydraulic motors and planetary speed reducers. Electro-mechanical drive on 301- 305
- Shafts journaled in dual self-aligning high dynamic load roller bearings

Material guides adjust tri-directionally

↔ in/out ↑↓ up/down ↻ cw/ccw (50-300)

STANDARD EQUIPMENT

- LED Digital Displays on all 3000 Series Angle Rolls
- Telescoping Modular Multi-Component roll set specifically designed to bend standard sections including angle Leg-In/Out and Square/Rectangular Tube as well as other shapes in a variety of material types
- Tri-Directional Lateral Guides with cam rollers for improved Angle Rolling Performance

OPTIONS

- Rolls for tubes, pipes and special profiles
- Tooling for production of half tubes
- Overhead supports for coil production
- Compression and tension tooling for C channel, & I beam hard way bending
- NC & CNC Controls with various automation levels for repetitive jobs and production of variable radius bends and parts with multiple bends
- Powered lateral material guides on models 308-315
- LED digital displays for lateral guide movements



Custom tooling for special sections made in-house for Rapid Turnaround



Standard rolls used to roll junior I beams EZ and Hard way



305HV with Coiling Attachment

314HV4



312HV4



310HV4



Lateral guides used for angle leg-in



307HV



305



303

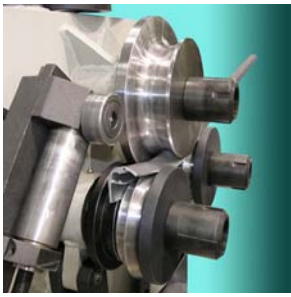


302

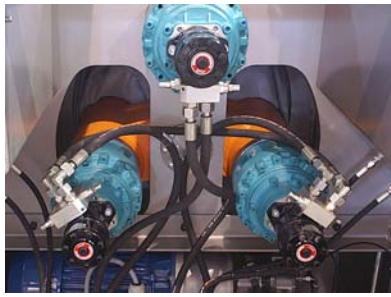


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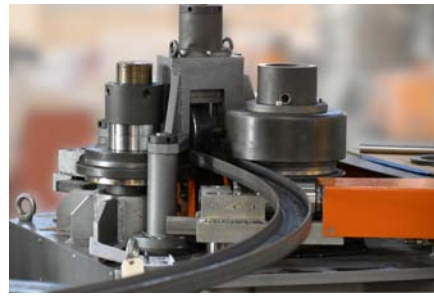




Custom tooling for special sections made in-house for Rapid Turnaround



Direct coupled hydraulic motors and planetary speed reducers



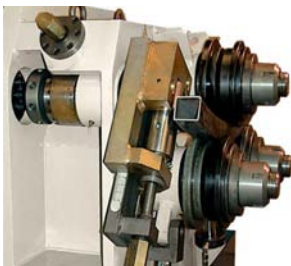
Tension tooling for hard way bending of beams



Lateral guides used for angle leg-in



Standard rolls used on junior beams EZ & HW




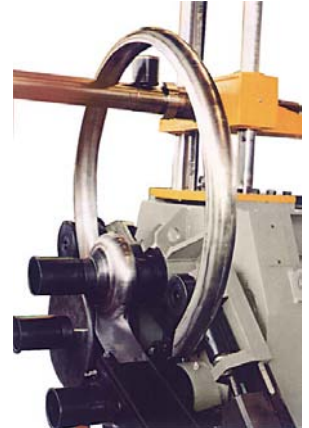
Standard rolls used to roll square tube



Special rolls for tube and pipe

TECHNICAL FEATURES

- Three driven rolls, smooth surfaced for optimal profile traction and surface finish
- Double Pinch Geometry permits pre-bending of leading and trailing ends of the profile without removal from the machine
- Material guides tri-directionally adjustable

- Dual LED Digital Displays monitor bending roll positions (All Versions)
- Monolithic single weldment frames heavily reinforced at load points, stress relieved and CNC machined
- Detached mobile control stand with trailing lead, low voltage controls, Emergency stop
- With both Horizontal & Vertical operation on models 301 - 309
- Bending rolls in Nickel Chrome Molybdenum tool steel, hardened for optimal performance
- Top roll drive incorporates a torque limiting device for overload protection which allows differing roll speeds when bending tall sections
 Models 301 - 305 mechanical clutch
 Models 306 - 315 hydraulic compensator
- Variable speed hydraulic drive train 306 - 315 with direct coupled hydraulic motors and planetary speed reducers. Electro-mechanical drive on 301 - 305
- Shafts journaled in dual self-aligning high dynamic load roller bearings



Special tooling for half tubes and powered overhead support for coils and spirals



Tri-directional lateral material guides standard
Tri-directional hydraulic powered: 308 - 315



301HV
1" Capacity
Horizontal & Vertical
Operation



306HV Shown
in Horizontal &
Vertical Operation



312HV4
8" Capacity




















Shown with Hard-Way
Beam Bending Traction Tooling

OPTIONAL NC/CNC CONTROLS
allow complete flexibility & automation of the work cycle

NOTES: Chart indicates minimum suggested inside diameter with maximum profile size, using mild steels rolling generally in multiple passes. • Data is approximate specified inches u.n.o. • Custom tooling for some profiles may be required for volume production and minimum rolling diameters are limited to level of acceptable deformation. • The manufacturer and Carell Corp. reserve the right to revise design, construction and specifications without prior notice. • Ratings based on material yield of 36KSI. • Machines with extended shafts or shortened shafts are available. • We build totally custom geometries and configurations for highly specific manufacturing requirements • Call us you have questions on applications or capacities.

Series 3000 machines are designed compliant with EEC norms and bear CE plates. Units are designed to comply with ANSI B11.12.1996 standards. The employer of the operator is responsible for providing and insuring the usage of point of operation guards and/or properly applied and adjusted point of operation safety devices are required to meet OSHA, state and local safety requirements.

SERIES 3000 DOUBLE PINCH HYDRAULIC ANGLE ROLLS CAPACITIES & SPECIFICATIONS

Series 3000 Model	301HV	302HV	303HV	304HV	305HV	306HV	307HV	308HV	309HV	310HV4	311HV4	312HV4	313HV4	314HV4
Flats, Hard 	1-½ x ¼ Ø12	2 x 5/16 Ø16	2-3/8 x 3/8 Ø20	2-¾ x ½ Ø28	3 x 5/8 Ø30	4 x 5/8 Ø42	4 x 1 Ø44	5-½ x ¾ Ø60	6 x 1 Ø60	6 x 1-½ Ø60	8 x 1-¼ Ø100	8 x 2 Ø100	10 x 2 Ø120	10 x 2-½ Ø120
Flats, Easy 	2 x ½ Ø12	2-3/8 x 5/8 Ø18	3 x ¼ Ø18	4 x 1 Ø26	5 x 1 0 Ø26	6 x 1 Ø30	7 x 1-3/8 Ø32	8 x 2 Ø42	9 x 2 Ø48	10 x 2-½ Ø60	12 x 2-½ Ø60	16 x 2-½ Ø76	18 x 2-½ Ø80	20 x 3 Ø90
Square Bar 	¾ Ø12	1 Ø12	1-¼ Ø18	1 ½ Ø20	1-¾ Ø22	2 Ø26	2-½ Ø32	3 Ø36	3-3/8 Ø48	3-¾ Ø60	4 Ø54	4-½ Ø66	5 Ø78	6 Ø90
Angle, L-Out 	1-¼ x 3/16 Ø16	2 x 3/16 Ø24	2 x ¼ Ø28	2-½ x 5/16 Ø30	3 x 3/8 Ø42	3-½ x 3/8 Ø48	4 x ½ Ø48	5 x ½ Ø60	5 x 5/8 Ø54	6 x ¾ Ø72	6 x 1 Ø96	8 x 1 Ø120	8 x 1 Ø80	8 x 1-¼ Ø80
Angle, L-In 	1 x 3/16 Ø16	1-½ x 3/16 Ø18	2 x 3/16 Ø28	2 x 5/16 Ø30	2-½ x 5/16 Ø42	3 x 3/8 Ø40	4 x 3/8 Ø50	4 x ½ Ø48	5 x ½ Ø60	5 x 5/8 Ø60	6 x 1 Ø120	8 x ¾ Ø140	8 x 1 Ø100	8 x 1-1/8 Ø80
Tee, L-Out 	1-¼ x 3/16 Ø14	2 x ¼ Ø20	2-3/8 x ¼ Ø24	2-½ x 5/16 Ø26	3 x 3/8 Ø34	3-½ x 3/8 Ø38	4 x ½ Ø54	4-½ x ½ Ø48	5 x ½ Ø60	6 x ½ Ø75	6 x 5/8 Ø96	7-½ x 5/8 Ø96	8 x 5/8 Ø96	10 x ¾ Ø144
Tee, L-In 	1 x 3/16 Ø14	1-½ x 3/16 Ø20	2 x 3/16 Ø22	2 x 5/16 Ø26	3 x 5/16 Ø36	3-½ x 5/16 Ø38	4 x 3/8 Ø60	4 x ½ Ø50	4-½ x ½ Ø60	5 x ½ Ø75	6 x ½ Ø96	7-½ x 5/8 Ø96	8 x 5/8 Ø96	10x5/8 Ø144
C, Legs-out 	1-½ x ¾ Ø14	2 x 1-½ Ø16	3 x 1-¾ Ø24	4 x 1-¾ Ø28	5 x 2 Ø28	6 x 2-½ Ø30	7 x 2-½ Ø36	8 x 3 Ø36	10 x 3 Ø48	12 x 3 Ø48	15 x 3-½ Ø48	16 x 4 Ø60	18 x 4 Ø60	20 x 4 Ø72
C, Legs-in 	1-½ x ½ Ø14	2x1 Ø20	2-½ x 1-5/8 Ø30	3 x 1-¾ Ø28	4 x 2 Ø36	5 x 2-½ Ø40	7 x 2-½ Ø48	8 x 3 Ø48	10 x 3 Ø60	12 x 3 Ø60	15 x 3-½ Ø60	16 x 4 Ø60	18 x 4 Ø60	20 x 4 Ø72
Round Bar 	1 Ø12	1-3/16 Ø14	1-3/8 Ø16	1-¾ Ø20	2 Ø22	2-½ Ø30	3 Ø30	3-3/8 Ø40	3-½ Ø40	4-½ Ø60	5 Ø60	5-½ Ø60	6 Ø72	7 Ø90
1 Pipe, Sch. 40 	¾ Ø16	1-¼ Ø20	1-½ Ø20	2 Ø24	2-½ Ø32	3 Ø42	4 Ø45	5 Ø70	6 Ø120	6 Sch80 Ø100	8 Ø100	10 Ø160	12 Ø160	12 Scd80 Ø200
1 Round Tube 	1-½ x 16Ga	2 x 16Ga	2-3/8 x 14Ga	3 x 14Ga	3-½ x 14Ga	4-½ x 12Ga	5-½ x 10Ga	6-½ x 9Ga	7 x 3/16	8 x 3/16	10 x 3/16	12 x 3/16	14 x 3/16	14 x 5/16
2 Square Tube 	1 x 14Ga	1-½ x 14Ga	2 x 14Ga	2-¼ x 11Ga	2-½ x 10Ga	3 x 3/16	3-½ x ¼	4 x 5/16	5 x 5/16	5-½ x 5/16	6 x 3/8	7 x 3/8	8 x ½	10 x 7/16
2 Red. Tube 	1-¼ x ¾ x 14Ga	1-½ x ¾x 13Ga	2 x 1-¼ x 12Ga	2-½ x 1-¼ x 11Ga	3 x 1-½ x 10Ga	4 x 1-½ x 3/16	5 x 2 x 3/16	5-½ x 2 x 5/16	6 x 3 x ¼	7 x 3 x 5/16	8 x 3-½ x 3/8	8 x 4 x 3/8	10 x 4x ½	10 x 6 x ½
I Beam EZ 			S3 x 5.7 Ø24	S4 x 7.7 Ø30	S5 x 10 Ø32	S6 x 17 Ø36	S7 x 20 Ø48	S8 x 23 Ø48	S10 x 35 Ø48	S12 x 40 Ø48	S15 x 50 Ø48	S18 x 54 Ø72	S18 x 70 Ø80	S20 x 96 Ø86
H Beam EZ 						M4x 13 Ø72	W5x 16 Ø60	W6x 20 Ø60	W8x 24 Ø72	W8x31 Ø72	W10x 45 Ø108	W10x 54 Ø120	W12 x 72 Ø96	W18x 106 Ø120
3 C, On Edge 							C3 x 6 Ø96	C5 x 9 Ø140	C6 x 13 Ø200	MC7 x 17 Ø250	C8x 18.75 Ø300	C10 x 25 Ø400	MC12 x 50 Ø450	C15 x 34 Ø600
3 1 Beam HW 							S5 x 15 Ø100	S6 x 17 Ø120	S7 x 20 Ø150	S8 x 23 Ø200	S8 x 23 Ø140	S10 x 35 Ø300	S12 x 50 Ø300	S15 x 50 Ø550
3 H Beam HW 								W4 x 13 Ø100	W5 x 19 Ø100	W6 x 20 Ø180	W6 x 25 Ø120	W8 x 28 Ø300	W10 x 33 Ø400	W12 x 35 Ø500
Section Modulus in. ³	0.10	0.20	0.40	0.61	1.10	1.5-2.26	2.8-4.9	4.3-7.4	6.2-10	9-15	14-21	20-36	28-44	40-62
Rolling Speed fpm	20	20	20	20	20	0-23	0-23	0-23	0-23	0-23	0-23	0-23	0-23	0-23
Power Output HP	2	3.8	4	4.7	6.5	10	15	20	24	30	40	55	90	120
Roll Diameters in.	5.31	5.70	7.0	8.07	9.65	10.83	12.40	15.375	17	18.75	22	25.25	28.375	33
Shaft Diameters in.	1.38	1.57	1.97	2.36	2.76	3.54	3.94	5.3/4.7	6.3/5.3	7.3/6.7	8.5/7.9	9.8/9.1	11.6/10.7	12.6/11.8
Approx. Weight lbs.	780	1,200	1,720	2,420	3,450	5,725	8,210	10,000	15,180	20,500	28,800	41,000	54,500	99,000

LEGEND: (1) Set of 3 rolls required for each tube or pipe size, (2) Special rolls may improve results on these profiles, (3) Special Beam On-Edge Traction Device required



CARELL CORPORATION P.O. Box 850 34225 Hwy 31 Stapleton, AL 36578
 www.carellcorp.com • sales@carellcorp.com TEL 251.937.0947 FAX 251.937. 4742