

ROUND0

4-Roll Plate Bending Machines

Type PAS/PASS



ROUND0

Highest Demand on Performance and Reliability meets lowest overall Cost



1. Align the plate against the raised rear side roll. Raise the lower roll to pinch the plate. Return the plate to prebending position.



PAS 700



PAS 360
Support rolls



PAS 360

ROUND O is the world's leading manufacturer of plate and section bending machines. The company was formed in 1964, and has delivered more than 16,000 machines to satisfied customers around the globe. ROUND O machines are world-renowned for outstanding performance, reliability and quality.

Wide range of Machines

The standard range of 4-roll plate bending machines covers plate thicknesses from 16 ga. to 3-1/2" and widths from 4' to 12'. All machines have unique features needed for high precision and high output rates:

- Outstanding prebending capacities. In many cases, the remaining flat end is as short as one time the plate thickness.
- Fully hydraulic, infinitely variable speed drive and adjustment of the rolls.
- Highest drive torque of any competitive machine.
- Frames made of high-strength steel, fully welded and stress relieved before machining to have sufficient strength to absorb bending forces and to achieve highest possible accuracy.
- Built as standard with such mechanical precision and rigidity that all machines can be equipped with CNC-control.
- Excellent for cone bending, including prebending of cone plate.
- Easy to integrate into a production line when equipped with automatic infeeding of the plates, automatic ejection and down-line transport of the finished cylinder.



2. Raise the front side roll. Prebend and roll.



3. Lower the front side roll and raise the rear side roll until it reaches the prebent edge.



4. Continue to roll the plate.



5. The cylinder is finished.

The Rolls and Bearings

The rolls are manufactured of high carbon-content steel forgings for maximum surface hardness. The rolls are crowned to fit the largest possible thickness range within the capacity of the machine. To increase the thickness range further, the machines can be equipped with support rolls for the lower roll.

For bending stainless steel or for frequent cone bending, hardened and ground rolls are recommended.

All rolls on ROUND0 plate bending machines are journaled in spherical roller bearings of the highest quality, resulting in minimal friction losses and longer service life.

Ensured Parallelism

The parallelism of the rolls is one of the most crucial factors in achieving good bending results and is absolutely essential for optimal use of CNC controls. This is ensured on all ROUND0 machines, even under maximum load.

On PASS machines, the lower roll is adjusted by wedge blocks and a hydraulic cylinder, as shown to the right. This adjustment is very accurate and guarantees perfect parallelism of the rolls.

On PAS machines, the parallelism of the lower roll and both side rolls is electronically regulated by the digital control system. A precision glass-scale linear encoder, fitted to each end of the rolls, monitors the exact position of the roll.

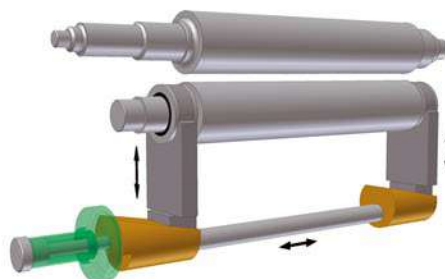
Hydraulic Drive and High Drive Torque

All machines have fully hydraulic roll rotation, side roll and lower roll adjustment and drop end control. Combined with infinitely variable speed adjustment, the operator will have full control of the process in any bending situation.

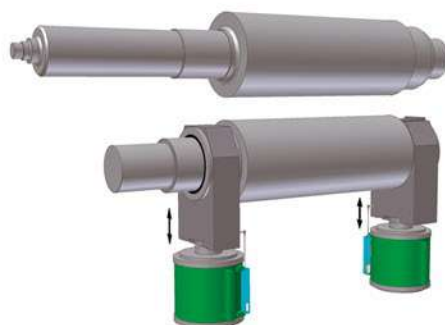
The high drive torque makes it possible to prebend with maximum capacity and to bend a plate with maximum plate thickness down to a small radius in only one pass. All ROUND0 4-roll plate bending machines have precise control of the speed difference between top roll and lower roll.



PAS 500 during assembly



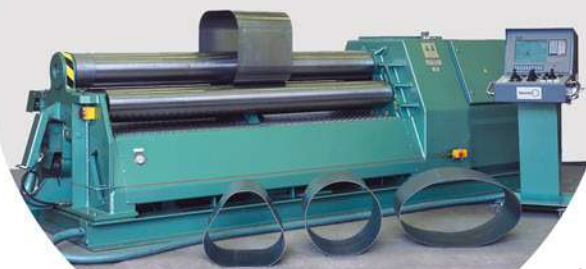
Ensured parallelism on PASS with wedge blocks adjusted by a hydraulic cylinder



Ensured parallelism on PAS with linear encoders connected to the master controller



New User-Friendly
ROUND0 wCNC⁴



PASS 255



PASS with lifting roll
to avoid double plate



PASS 150

For Maximum Performance

Efficient multiple production of simple cylinders or complex parts is the main advantage of a CNC control. ROUND0's CNC system can control not only the rotation and the positioning of the rolls, but also the crowning effect of the support rolls, material support and lifting devices, and even tilt the side rolls during the bending operation, a feature unique to the ROUND0 CNC control. Where automatic infeeding of the plates and automatic ejection are required, the whole automatic process can be controlled by the CNC system.

Precise Positioning

The CNC system controls the machine and positioning of rolls with the highest possible precision. We guarantee a positioning within 0,1 mm (0,004") of the side rolls and lower roll, even under varying load. These tight tolerances, unmatched by any competitive machine, are a direct result of the high mechanical precision and rigidity of the machine.

Easy-to-Use

With clear commands and preset functions, the operator can create programs in a simple, yet logical way. Programs can also be created via the "Teach-in" function. Our unique geometry program enables users to create programs directly from drawings, and to quickly calculate the position of the side rolls to achieve a given radius. The interpolation function allows the machine to simultaneously rotate and change position of one of the side rolls, achieving varying radii and smooth transitions on the plate. For detailed information about our CNC system, ask for our separate CNC leaflet.

Machines ideal for Serial Production

ROUND0 4-roll plate bending machines equipped with CNC control and lifting roll with ejection device are ideal for manufacturing of cylinders, ovals and square shaped objects. With the lifting roll, overlap of the leading plate edge during the last part of the bending sequence is effectively avoided. After completion of the bending process, the part can be automatically ejected from the machine.

Larger 4-roll machines are successfully used for production of all types of cylinders, for tanks, boilers etc.

Towers for wind mills with a slightly conical shape are often produced in ROUND0 PAS machines.



PAS 700
producing
wind mill towers

Complete production line for production of fuel tanks. Includes PASS 150, automatic infeeding of plates off a stack and automatic outfeeding of the finished tank body. Equipped with bar code reader for automatic change of CNC program to correspond to the actual plate being placed on the infeeding table, resulting in true just-in-time production.



Bar code reader



Automatic infeeding of plate



Bending process



Automatic outfeeding of finished tank body



PAS 700 with top support and side support



PAS 420 with rolls for bending of corrugated plates



Interchangeable top roll

Accessories

All ROUND0 4-roll plate bending machines can be equipped with a wide range of accessories to increase the versatility of the machine:

- Hydraulically operated side support (can be mounted on one or both sides of the machine)
- Electro-mechanically or hydraulically operated top support
- Lifting roll
- Ejection device
- Cone bending device
- Interchangeable top roll
- Adjustable support rolls for the lower roll
- NEW ROUND0 RLC/4 logic control
- Full CNC control under PLC
- Electronic positioning system
- Infeeding systems
- Other customized accessories



Adjustable support rolls for the lower roll



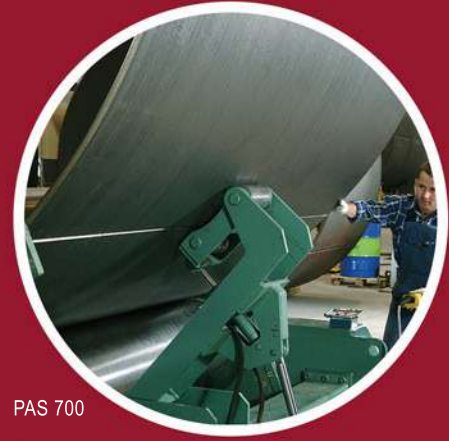
Cone bending



PASS 205



Capacities and Specifications



PAS 700

Round Plate Bending Machines Type PASS

Machine size	Machine capacity	Diameter of top and lower	Diameter of side rolls	Motor HP @ 480 Volts*	Net weight ¹	Gross weight ¹
	feet x inches	inches	inches	HP	pounds	pounds
110/4	4' x 3/16"	4.33"	4.33"	4	3100	3750
130/4	4' x 7/32"	5.12"	5.12"	6	4400	5100
150/4	4' x 1/4"	5.90"	5.90"	6	4850	5500
110/5	5' x 10 ga.	4.33"	4.33"	4	3300	4000
130/5	5' x 3/16"	5.12"	5.12"	6	4850	6000
150/5	5' x 1/4"	5.90"	5.90"	6	5300	6400
185/5	5' x 5/16"	7.28"	5.90"	8	7500	8600
205/5	5' x 7/16"	8.07"	6.30"	11	11000	12100
230/5	5' x 9/16"	9.06"	7.68"	11	16100	17200
255/5	5' x 5/8"	10.04"	8.47"	11	18700	19800
280/5	5' x 13/16"	11.02"	9.65"	20	22000	23800
310/5	5' x 7/8"	12.20"	10.43"	20	23500	25300
110/6	6' x 1/8"	4.33"	4.33"	4	3750	4400
130/6	6' x 3/16"	5.12"	5.12"	6	5500	6400
150/6	6' x 7/32"	5.90"	5.90"	6	6000	7100
185/6	6' x 1/4"	7.28"	5.90"	8	8400	9500
205/6	6' x 3/8"	8.07"	6.30"	11	12500	13650
230/6	6' x 1/2"	9.06"	7.68"	11	17200	18500
255/6	6' x 9/16"	10.04"	8.47"	11	19800	21350
280/6	6' x 11/16"	11.02"	9.65"	20	24000	25750
310/6	6' x 3/4"	12.20"	10.43"	20	25750	27500
110/8	8' x 12 ga.	4.33"	4.33"	4	4400	5100
130/8	8' x 5/32"	5.12"	5.12"	6	6400	7500
150/8	8' x 3/16"	6.10"	5.90"	6	6800	8000
185/8	8' x 1/4"	7.28"	5.90"	8	9200	10400
205/8	8' x 3/8"	8.07"	6.30"	11	14100	15200
230/8	8' x 7/16"	9.06"	7.68"	11	19400	20700
255/8	8' x 1/2"	10.04"	8.47"	11	22000	23600
280/8	8' x 5/8"	11.02"	9.65"	20	26200	28200
310/8	8' x 11/16"	12.20"	10.43"	20	28000	30000
150/10	10' x 10 ga.	6.30"	5.90"	6	7700	9000
185/10	10' x 3/16"	7.28"	5.90"	8	10200	11500
205/10	10' x 5/16"	8.07"	6.30"	11	15600	17000
230/10	10' x 3/8"	9.06"	7.68"	11	21600	23600
255/10	10' x 7/16"	10.04"	8.47"	11	24200	26400
280/10	10' x 9/16"	11.02"	9.65"	20	28000	30200
310/10	10' x 11/16"	12.20"	10.43"	20	30200	32400
255/12	12' x 3/8"	10.63"	8.47"	11	26400	28900
280/12	12' x 1/2"	11.81"	9.65"	20	30000	32400
310/12	12' x 9/16"	12.90"	10.43"	20	32350	37800

DATA CAN BE CHANGED WITHOUT PRIOR NOTICE IN CONSIDERATION OF CONTINUING TECHNOLOGICAL IMPROVEMENTS.

Round Plate Bending Machines Type PAS

Machine size	Machine capacity	Diameter of top and lower	Diameter of side rolls	Motor HP @ 480 Volts*	Net weight ¹	Gross weight ¹
	feet x inches	inches	inches	HP	pounds	pounds
340/5	5' x 1-1/8"	13.40"	11.42"	36	32200	34400
360/5	5' x 1-1/4"	14.17"	12.40"	36	35600	37800
420/5	5' x 1-11/16"	16.54"	13.58"	65	48800	52400
460/5	5' x 2"	18.11"	15.35"	80	64800	68200
340/6	6' x 1"	13.40"	11.42"	36	34800	37200
360/6	6' x 1-1/8"	14.17"	12.40"	36	38800	41400
420/6	6' x 1-1/2"	16.54"	13.58"	65	53000	57000
460/6	6' x 1-7/8"	18.11"	15.35"	80	69600	73200
500/6	6' x 2-1/8"	19.69"	16.54"	135	84400	88400
550/6	6' x 2-3/8"	21.65"	17.72"	135	100800	105200
600/6	6' x 2-13/16"	23.62"	19.10"	170	138400	147400
650/6	6' x 3-1/4"	25.60"	20.87"	220	148000	156600
700/6	6' x 3-1/2"	27.56"	22.44"	240	182200	193200
340/8	8' x 7/8"	13.40"	11.42"	36	37400	40000
360/8	8' x 1"	14.17"	12.40"	36	41800	44400
420/8	8' x 1-3/8"	16.54"	13.58"	65	57200	61200
460/8	8' x 1-5/8"	18.11"	15.35"	80	74400	78400
500/8	8' x 1-7/8"	19.69"	16.54"	135	90200	94600
550/8	8' x 2-1/8"	21.65"	17.72"	135	107600	112000
600/8	8' x 2-1/2"	23.62"	19.10"	170	147200	155200
650/8	8' x 2-11/16"	25.60"	20.87"	220	158800	167600
700/8	8' x 3-1/4"	27.56"	22.44"	240	194400	205200
340/10	10' x 3/4"	13.40"	11.42"	36	40000	43000
360/10	10' x 1"	14.17"	12.40"	36	45000	47800
420/10	10' x 1-1/4"	16.54"	13.58"	65	61400	66000
460/10	10' x 1-1/2"	18.11"	15.35"	80	79200	83600
500/10	10' x 1-11/16"	19.69"	16.54"	135	96000	100800
550/10	10' x 2"	21.65"	17.72"	135	114400	119200
600/10	10' x 2-3/8"	23.62"	19.10"	170	156000	163600
650/10	10' x 2-9/16"	25.60"	20.87"	220	169800	178600
700/10	10' x 3"	27.56"	22.44"	240	206400	216800
340/12	12' x 11/16"	13.40"	11.42"	36	42600	46000
360/12	12' x 3/4"	14.17"	12.40"	36	48000	51000
420/12	12' x 1-1/16"	16.54"	13.58"	65	65600	70400
460/12	12' x 1-1/4"	18.11"	15.35"	80	84200	89000
500/12	12' x 1-7/16"	19.69"	16.54"	135	101800	107000
550/12	12' x 1-5/8"	22.85"	17.72"	135	121200	126600
600/12	12' x 2-1/8"	24.80"	19.10"	170	165000	172800
650/12	12' x 2-3/8"	26.75"	20.87"	220	180800	189600
700/12	12' x 2-3/4"	28.75"	22.44"	240	218200	229400

* - in the most popular configuration.

1) Weight for basic machine without optional equipment.

2) HP for basic machine. HP will increase with the addition of CNC control and other options

- Machine capacities based on rolling steel Type A-36 with 38,000 PSI yield strength to 5 x top roll diameter.
- Machine lengths to 25' and larger capacities can be delivered on request.



PAS 460 with infeding table

ROUND O



ROUND O was founded in 1964 in Sweden and became the world leading brand for profile bending machines and plate rolling with more than 16.000 machines delivered all over the world.

What makes our customers extremely satisfied, are the remarkably high quality, performance, reliability and long service life of ROUND O equipment, along with our never-ending process of developing and producing superior machines.

Together with Boldrini, ROUND O is now a division of the Italian Faccin Group, representing the world leaders in designing and manufacturing of angle rolls, plate rolls, dishing and flanging equipment, and special machines. This cooperation has resulted in more than 210 years of experience in metal forming and over 25.000 machines installed worldwide.

By combining organizational skills, the resources of 3 manufacturing sites and more than 100 people devoted to bending machinery and technology, we supply technological advanced new machines and spare parts according to the original ROUND O design.

ROUND O division headquarters are located in our new production site in Castiglione delle Stiviere in the North of Italy, an advanced building concerning project, construction technology and dimensions necessary to support our customers' necessities, demanding always bigger and superior machines.

All design and assembly, including wiring and final testing of the machines is done in-house. Our engineers and technicians employ cutting-edge technologies and renowned original ROUND O experience and know-how. Result are products that represent unique quality, performance and reliability on the global market.

ROUND O



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