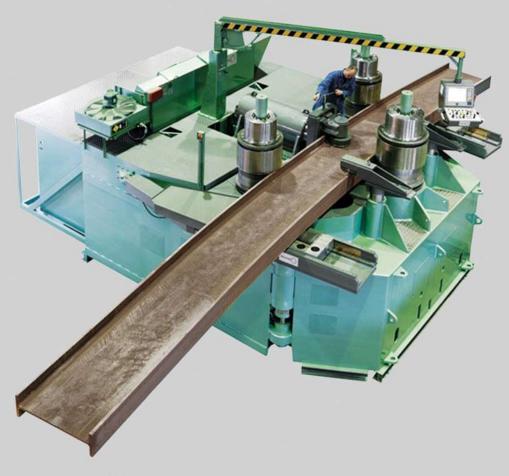
# ROUNDO Section Bending Machines Type R-3 through R-16-S



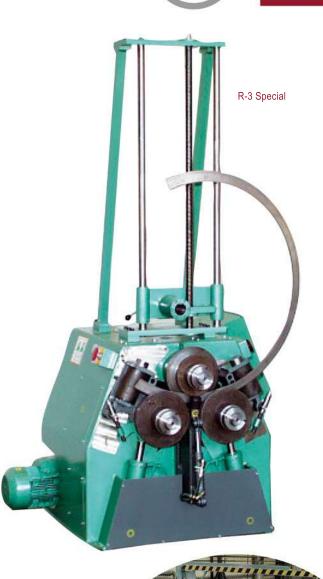






# Roundo Section Bending Machines Largest selection on the market

# ROUNDO



ROUNDO offers the largest selection of section bending machines on the market. We produce over 20 different standard sizes, from the R-3, our smallest machine, to the R-16-S. Our machines are always more powerful and more heavily proportioned in terms of frame, shaft size, bearings and drive torque than machines from other suppliers. CNC controls and a wide array of options are available for all models.

#### ANY TYPE OF APPLICATION

R-3 is a basic machine for all types of section bending. The guide rolls are manually adjusted and fixed to the swing arms. The range of "S"-models offers enhanced versatility due to the unique design of the hydraulic guide rolls.

# MAIN ADVANTAGES WITH ROUNDO BENDING MACHINES

#### Heaviest proportioned main frame

R-16-S

The main frame on all ROUNDO section bending machines is welded steel construction, machined and line bored using the heaviest components of any comparable machine for added strength and rigidity. ROUNDO is the only manufacturer who stress-relieves every frame after welding.

ROUNDO is the worlds 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. ROUNDO machines are world-renowned for outstanding performance, reliability and quality.

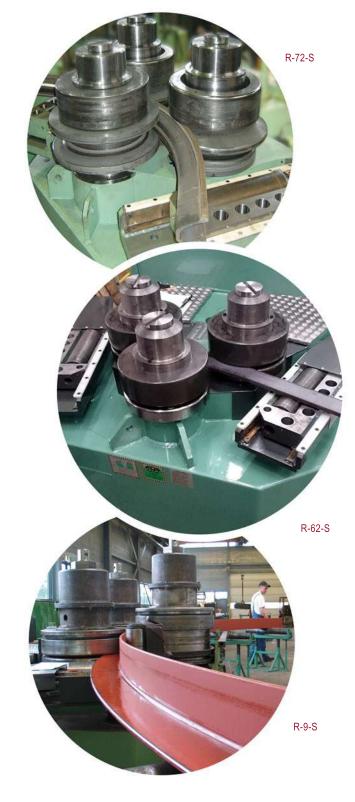
- Largest shaft diameters and bearing sizes
  Roll shafts are made from high-strength
  chrome-nickel alloy steel,and are the largest
  diameter shafts of any comparable machine.
  These heavily proportioned shafts help
  minimize deflection, resulting in improved
  bending. The roll shafts are journalled in
  oversized SKF roller bearings for greatest
  efficiency and long life. The standard tooling
  is a combination set for bending angles both
  leg-out and leg-in, flat bar on flat and on
  edge, T-bar stem-out and stem-in as well as
  stem-down, small square bar and even small
  solid round bar. Normally, no additional
  spacers are required.
- Highest drive torque and rotation speed ROUNDO section bending machines provide the greatest drive torque of any comparable machine. Greater drive torque means the section can generally be rolled in fewer passes, often resulting in less deformation to the section being rolled. All three rolls are driven at all times. The maximum rotation speed on all models is generally 23 ft/min, considerably higher than other comparable machines.

#### Greatest bending roll force

The two lower rolls are individually adjusted by hydraulic cylinders. The rolls are sized to allow ROUNDO section bending machines to generate more bending power than any comparable machine, providing the largest section modulus capacity.

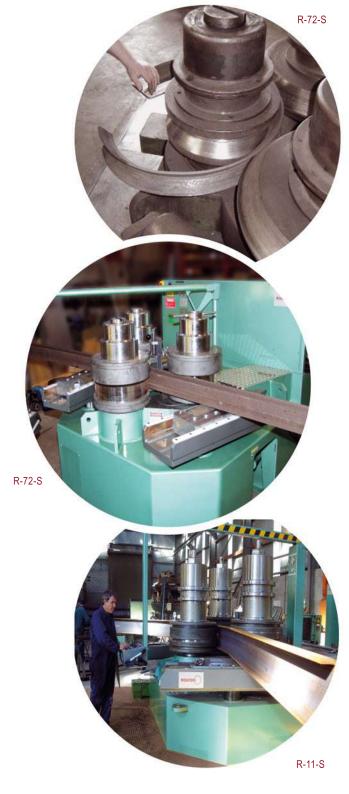
#### Most powerful guide rolls

ROUNDO section bending machines feature the largest, most powerful guide rolls available on the market. This allows them to take the twist out of the most massive sections within the capacity of the machine. The hardened steel guide rolls, including "leg-in" guide rolls, are standard on every model.



# Type R-3-S to R-16-S





The "S" models are suitable for all types of section. The three bending shafts are journalled in heavy duty SKF ball bearings. The guide rolls are hydraulically adjustable in three directions on most of the models. The hardened steel guide rolls are used to control the attitude of the material going into and coming out of the bending rolls. They are used when bending angle leg-out and leg-in and can be effective in many other bending applications.

#### STANDARD EQUIPMENT R-3-S to R-16-S

#### Drive on all three rolls.

- R-3-S and R-4-S: Infinitely variable rotation speed via hydraulic motor.
- R-52-S to R-72-S: Infinitely variable rotation speed via double hydraulic motors one for the top roll and one for the lower rolls.
- R-9-S to R-16-S: Infinitely variable rotation speed via hydraulic motors, one for each roll.





- Automatic compensation for the speed difference between the rolls.
  - R-3-S to R-4-S: Via adjustable slip clutch.
  - Other models: Compensation built into the hydraulic system.
- Hydraulic adjustment of the lower rolls.
- Digital display showing the position of the lower rolls.
- Hydraulically operated guide rolls.
- Set of standard rolls combined for standard angle bars leg-out and leg-in, flat bar on flat and on edge, "T", small round bars and square bars.
- SKF roller bearings in all main journals.
- Emergency stop button.
- Portable control with mini-joysticks for all functions (R-3-S to R-4-S).
- Pendant control with mini-joysticks for all functions including electrical speed adjustment by potentiometer (R-52-S to R-72-S).
- Control panel on swing arm for all functions including electronic speed adjustment by joysticks for rotation and adjustment of lower rolls. (R-9-S to R-16-S).

#### **SPECIAL ROLLS**

- Rolls for pipe. Each set of rolls can be designed for one or two different sizes of pipe.
- Rolls for round bar.
- Rolls for square and rectangular tubing.
- Combined rolls for I and U beams the easy way, adjustable for all different sizes covering the capacity of the machine.
- Rolls for high production of rings by spiral bending of flat bar, pipe and other profiles.
- Rolls for special sections and profiles are designed on request.
   In some cases the rolls are made of nylon to

avoid marking and tearing on easily damaged sections.

- Universal rolls.
- Beam bending rolls.



## **Controls and Optional Equipment**

#### ROUNDO wCNC4 is as easy as 1,2,3...









readouts

#### CONTROLS

The NEW ROUNDO wCNC4 Control is a PC-based CNC control runnina under providing Microsoft® Windows, operator-friendly graphical interface. This highly advanced and powerful system can control up to 24 axes, including the main bending rolls, the powered pushing rolls and support devices, and even the special devices used to bend beams and channels on X-X axis.

The NEW ROUNDO wCNC4 Control software includes a library of bending wizards to rapidly produce good parts. Even short runs can be efficiently rolled using this system. The CNC Control is available for all models.

The NEW ROUNDO RLC/4 Numeric Control Unit is based on superior quality Siemens hardware. This is our entry level Power Numeric Control Unit capable of managing all the functions necessary to automate the bending process.

- Up to 10 Axis Controllable;
- Up to 30 Steps per Program;
- Editing Possibility by Line.

The NEW ROUNDO RLC/1 Position Control System is a basic positioning control with possibility to preset two values for each axis. The positioning control automatically stops the movement of the bending roll when the pre-set value is reached. The system is designed to make repetitive bends.

Electronic digital readouts are available for all models to improve the positioning accuracy of the bending rolls when adjusted by the operator.

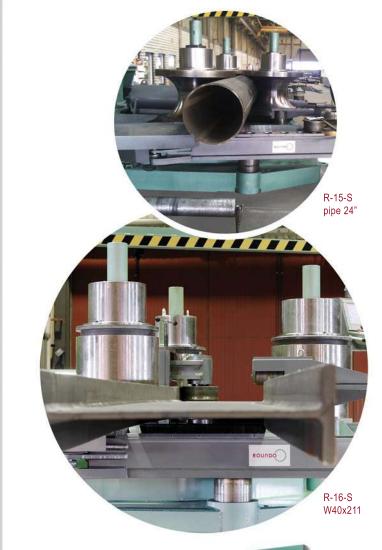






#### **OPTIONAL EQUIPMENT R-3-S to R-16-S**

- Combined horizontal/hvertical design (R-3-S to R-72-S).
- Increased rolling speed with full drive torque.
- Digital display showing the positions of the guide rolls (R-3-S to R-72-S).
- Microhydraulic adjustment of the lower rolls.
- Hydraulic axial movement of guide rolls (R-3-S to R-4-S).
- Separate hydraulic drive on the top shaft (R-3-S to R-4-S).
- Motorized height adjustment on swing arm.
- Linear measuring for top roll (R-3-S to R-13-S).
- Extended bending shaft for thin and wide sections (R-3-S to R-13-S).
- Automatic central lubrication system (R-3-S to R-13-S).
- Spiral bending device for production of coils (R-3-S to R-72-S).
- Half pipe equipment to form and bend a half pipe from a flat strip.
- Hydraulic pulling roll unit for bending I- Uand H-beams the hard way.
- Special guide unit for bending I- and U-beams the hard way (R-52-S to R-13-S).
- Pushing roll unit for improved bending of thin sections and angle bars (R-3-S to R-72-S).
- Wide selection of special rolls.
- Mandrel system to improve bending result on hollow sections.
- Pushing unit for small diameters and heavy bending.
- NEW ROUNDO wCNC<sup>4</sup> control.
- NEW ROUNDO RLC/4 Logic control.
- NEW ROUNDO RLC/1 Position control.
- Hydraulic tooling adjustment.







## **ROUNDO 3-Roll Section Bending Machines**

## **Capacities and Specifications**

	Section	R-3	R-3-S	R-4-S	R-52-S	R-62-S	R-72-S
N	<b>–</b>	3 x 3 x 5/16	3 x 3 x 3/8	4 x 4 x 1/2	5 x 5 x 1/2	6 x 6 x 5/8	6 x 6 x 1
		To Ø 30	To Ø 33	To Ø 45	To Ø 50	To Ø 85	To Ø 100
		2-1/2 x 2-1/2 x 5/16	3 x 3 x 3/8	4 x 4 x 3/8	4 x 4 x 1/2	5 x 5 x 3/4	6 x 6 x 1
8	<b>I</b>	To Ø 40	To Ø 40	To Ø 48	To Ø 50	To Ø 85	To Ø 130
MP		3 x 3 x 5/16	WT 3x12.5	WT 4	WT 5	WT 6	WT 6
<b>-</b>		To Ø 30	To Ø 30	To Ø 40	To Ø 45	To Ø 60	To Ø 90
2		3 x 3 x 5/16	WT 3x12.5	WT 4	WT 5	WT 5	WT 6
00.	•	To Ø 35	To Ø 50	To Ø 60	To Ø 60	To Ø 65	To Ø 110
힣	T	3 x 3 x 5/16	WT 3x12.5	WT 4	WT 5	WT 6	WT 6
돗 -		To Ø 30	To Ø 28	To Ø 40	To Ø 40	To Ø 60	To Ø 85
<u> </u>		3 x 5/8	3-1/2 x 3/4	5 x 5/8	6 x 5/8	6 x 1-1/2	8 x 1-1/4
©		To Ø 20	To Ø 23	To Ø 30	To Ø 45	To Ø 70	To Ø 100
5		8 x 3/4 To Ø 20	6 x 1-1/4 To Ø 25	7 x 1-1/2 To Ø 25	8 x 2 To Ø 40	10 x 2 To Ø 40	12 x 2-1/2 To Ø 45
-		1-3/4	2	2-1/2	2-3/4	3-1/2	4-1/2
Ö		To Ø 18	To Ø 22	To Ø 25	To Ø 32	To Ø 45	To Ø 60
Ö		Ø 2	Ø 2½	Ø3	Ø 3-1/2	Ø 4 3/8	Ø 5
ō		To Ø 20	To Ø 30	To Ø 25	To Ø 40	To Ø 55	To Ø 50
<u>6</u>		2-1/2 Sch. 40	3 Sch. 40	4 Sch. 40	5 Sch. 40	6 Sch. 40	8 Sch. 40
\X	0 0	To Ø 32	To Ø 40	To Ø 45	To Ø 70	To Ø 85	To Ø 100
CHANGED WITHOUT PRIOR NOTICE IN CONSIDERATION OF CONTINUING TECHNOLOGICAL IMPROVEMENTS.		2-1/2 x 2-1/2 x 3/16	2½ x 1/4	3-1/2 x 1/4	4 x 1/4	5 x 5/16	6 x 3/8
NO	T + T	5	S6 x 17.25	S7 x 20	W8 x 21	W12 x 35	W14 x 38
2	2)	To Ø 28"	To Ø 25	To Ø 35	To Ø 40	To Ø 45	To Ø 60
Щ.	2)		W4 x 13	W6 x 16	W6 x 20	W8 x 31	W12 x 53
유		1 10	To Ø 50	To Ø 35	To Ø 40	To Ø 45	To Ø 60
8		C5 x 9	C6 x 13.0	C7 x 14.75	C8 x 22.8	C12 x 30	C15 x 50
K	<b>_</b>	To Ø 28"	To Ø 24	To Ø 30	To Ø 30	To Ø 40	To Ø 60
<u>8</u>		C5 x 9	C6 x 13.0	C7 x 14.75	C8 x 22.8	C12 x 30	C15 x 50
造		To Ø 32"	To Ø 33	To Ø 35	To Ø 35	To Ø 45	To Ø 70
00	4)	-	Max. section modulus	C5 x 6.7	C5 x 9	C7 x 12.25	C8 x 18.75
Ӗ			1.6 in.3	To Ø 200	To Ø 300	To Ø 350	To Ø 410
>	4)		Max. section modulus	S3 x 7.5	S5 x 10	W6 x 16	W8 x 21
崩			1.6 in.3	To Ø 80	To Ø 100	To Ø 120	To Ø 200
¥	4)	-	- 8	Max. section modulus	W3 x 13	W5 x 19	W6 x 25
H H				4 in.3	To Ø 80	To Ø 100	To Ø 150
HE I	Max. Section Modulus (in.3) 3)	0.85 - 1.10	1.3 - 1.9	2-4	3 - 5	6 - 10	11 - 20
CAN	Diameter of Standard Rolls	9"	10"	12.2"	15.2"	18.1"	21.7"
A C,	Diameter of top shaft/lower shafts	3"/3"	3.35"/3.35"	4.13"/4.13"	5.5"/4.72"	7.1"/6.3"	9.5"/8.7"
DATA	Motor HP at 480 V	5	8	12	17.5	23	45

All data valid for ASTM A-36 steel.

All dimensions in inches unless otherwise noted.

- 1) Min. bending diameter depends on grade of deformation that can be accepted.
- 2) Machine with extended shafts allows wider sections than specified.
- 3) Depending on bending diameter.
- 4) With beam-on-edge device for rolling beams and channels on X-X axis.

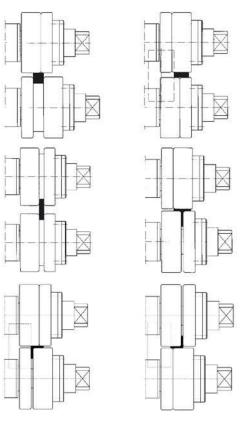
= with special rolls and/or special equipment



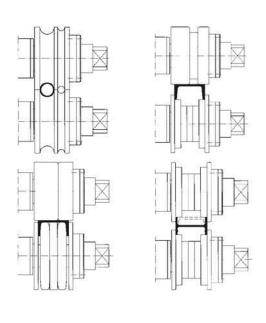
R-9-S	R-11-S	R-13-S	R-15-S	R-16-S	Section
8 x 8 x 1-1/8	8 x 8 x1-1/4	8 x 8 x 1-1/4	8 x 8 x1-1/4	8 x 8 x 1-1/4	
To Ø 80	To Ø 60	To Ø 60	To Ø 70	To Ø 135	
8 x 8 x 1	8 x 8 x 1-1/4				
To Ø 100	To Ø 70	To Ø 70	To Ø 80	To Ø 135	
WT 8	WT 8	WT 8	WT 8	WT 7x404	
To Ø 70	To Ø 55	To Ø 50	To Ø 60	To Ø 135	
WT 8	WT 8	WT 8	WT 8	WT 7x404	
To Ø 100	To Ø 70	To Ø 60	To Ø 60	To Ø 135	<b>—</b>
WT 7x116,5	WT 7x199	WT 7x213	WT 7x365	WT 7x404	<b>—</b>
To Ø 70	To Ø 60	To Ø 60	To Ø 80	To Ø 135	
10 x 2-1/2	12 x 3	16 x 2-3/8	20 x 5	20 x 6	
To Ø 80	To Ø 100	To Ø 120	To Ø 120	To Ø 120	
20 x 3	20 x 4	22 x 4	40 x 6	40 x 7	
To Ø 80	To Ø 80	To Ø 70	To Ø 70	To Ø 120	
6	8	10	12	14	
To Ø 80	To Ø 100	To Ø 100	To Ø 100	To Ø 120	5 to the second
Ø7	Ø9	Ø 10½	Ø 14	Ø 16-1/2	
To Ø 80	To Ø 80	To Ø 80	To Ø 90	To Ø 150	
12 Sch. 40	16 Sch. 40	20 Sch. 40	24 Sch. 40	24 Sch. 80	
To Ø 160	To Ø 300	To Ø 600	To Ø 600	To Ø 750	
9 x 1/2	12 x 1/2	16 x 5/8	20 x 3/4	24 x 3/4	1)
W21 x 93	W27x146	W36x210	W40x503	W40 x 593	2 7
To Ø 80	To Ø 100	To Ø 200	To Ø 200	To 200	2)
W16 x 77	W24x124	W33x241	W36x527	W40 x 593	2) T
To Ø 80	To Ø 100	To Ø 200	To Ø 200	To 200	2)
MC18 x 58					
To Ø 40	To Ø 38	To Ø 60	To Ø 60	To Ø 135	<b>4</b>
MC18 x 58					
To Ø 40	To Ø 40	To Ø 70	To Ø 60	To Ø 135	
MC12 x 50	MC18 x 58	MC18 x 58	MC18 x 58	MC18 x 58	4)
To Ø 350	To Ø 1000	To Ø 700	To Ø 700	To Ø 700	1
W12 x 35	W18 x 60	W24 x 117	W30x132	W40 x 183	4)
To Ø 500	To Ø 1500	To Ø 1800	To Ø 2500	To Ø 2000	
W10 x 39	W14 x 68	W16 x 100	W24x162	W40 x 211	4)
To Ø 400	To Ø 700	To Ø 1300	To Ø 1300	To Ø 1400	<sup>37</sup> L.
25 - 45	55 - 95	80 - 290	240 - 420	425 - 675	3) Max. Section Modulus (in.3)
29"	31.5"	31.5"	33"	33"	Diameter of Standard Rolls
11.8"/11"	14.2"/14.2"	14.2"/14.2"	15.75"/15.75"	20.47"/16.54"	Diameter of top shaft/lower shafts
95	100	105	160	235	Motor HP at 480 V



# **Example of Standard Rolls**



# **Example of Special Rolls**





R-4-S

R-9-S

ROUNDO Wide range of **Special Section Bending Machines** 



#### 4-ROLL SECTION BENDING MACHINES TYPE 4-R-3-S TO 4-R-8-S

- ROUNDO also supplies a range of section bending machines with four rolls.
- In the 4-Roll section bending machine the sections are pinched between top and lower roll, which are also the driven rolls. This offers the possiblity for prebending with extremely short remaining straight ends.
- Perfect machine for vehicle chasis components that requires three dimensional bending.
- Machine with hydraulic guide rolls offers total flexibility.
- Models available with section modulus capacity 0.7-21 inch<sup>3</sup>.

#### **ROUNDO 4-Roll Section Bending Machines**

#### **Capacities and Specifications**

Section	4-R-3-S	4-R-4-S	4-R-5-S	4-R-62-S	4-R-8-S	Section
	3 x 3 x 5/16	3-1/2 x 3-1/2 x 23/64	4 x 4 x 1/2	5 x 5 x 3/4	6x6x1	
	To Ø 31.5	To Ø 35	To Ø 40	To Ø 60	To Ø 60	
	3 x 3 x 5/16	3-1/2 x 3-1/2 x 23/64	4 x 4 x 1/2	5 x 5 x 3/4	6x6x1	
	To Ø 40	To Ø 45	To Ø 45	To Ø 45	To Ø 80	
	3 x 3 x 5/16	3-1/2 x 3-1/2 x 3/8	4 x 4 x 1/2	WT 5	WT 6	
¬ ;	To Ø 35	To Ø 35	To Ø 40	To Ø 60	To Ø 60	
	3 x 3 x 5/16	3-1/2 x 3-1/2 x 3/8	4 x 4 x 1/2	WT 5	WT 6	
	To Ø 40	To Ø 45	To Ø 60	To Ø 65	To Ø 80	
	3 x 3 x 5/16	3-1/2 x 3-1/2 x 3/8	4 x 4 x 1/2	WT 5	WT 6	
	To Ø 35	To Ø 35	To Ø 45	To Ø 60	To Ø 60	
	3 x 5/8 to Ø 40	3-1/2 x 5/8 to Ø 40	4 x 1-3/16 to Ø 40	5 x 1-1/2 to Ø 40	7 x 1-1/2 to Ø 45	
<del></del>	3-11/32 x 3/4 to Ø 140	5 x 5/8 to Ø 120	5 x 1-3/16 to Ø 80	6 x 1-1/2 to Ø 80	8 x 2 to Ø 100	
	6 x 1 to Ø 33	7 x 1-3/16 to Ø 40	10 x 1-3/16 to Ø 40	10 x 1-1/2 to Ø 40	15 x 2 to Ø 40	
i	6 x 1-1/2 to Ø 80	7 x 1-1/2 to Ø 80	10 x 1-1/2 to Ø 100	10 x 2 to Ø 120	15 x 60 to Ø 80	
	1-3/4 to Ø 40	2 to Ø 40	2-1/2 to Ø 25	3-11/32 to Ø 40	5 to Ø 60	
	2 to Ø 80	2-1/2 to Ø 80	3 to Ø 60	3-47/64 to Ø 80	5-1/8 to Ø 80	- i
	Ø 2 to Ø 40	Ø 2-1/2 to Ø 40	Ø 3 to Ø 30	Ø 4 to Ø 40	Ø 5-33/64 to Ø 60	
•   •	Ø 2-1/2 to Ø 100	Ø 75 to Ø 120	Ø 85 to Ø 80	Ø 4-21/64 to Ø 80	Ø 6 to Ø 140	
<u> </u>	2-1/2 Sch. 40	4 Sch. 40	5 Sch. 40	6 Sch. 40	10 Sch. 40	
0 0	To Ø 60	To Ø 80	To Ø 40	To Ø 100	To Ø 120	0 0
	2-1/2 x 2-1/2 x 3/16	3 x 1/4 1)	4 x 5/16 1)	5 x 5/16 1)	7 x 1/2 1)	10 0
T + T	5	S7 x 20	W8 x 21	W12 x 35	W14 x 43	
	To Ø 40	To Ø 45	To Ø 40	To Ø 45	To Ø 70	
$I \downarrow I$	Max section modulus 0.73 - 1.46 cm <sup>3</sup>	Max section modulus 24 - 45 cm <sup>3</sup>	W6 x 16 to Ø 35	W8 x 31 to Ø 45	W10 x 54 to Ø 80	III
7 I F	C5 x 9	C7 x 14.75	C8 x 22.8	C12 x 30	MC18 x 58	7   7
<u> </u>	To Ø 50	To Ø 45	To Ø 40	To Ø 45	To Ø 60	<b></b>
	C5 x 9	C7 x 14.75	C8 x 22.8	C12 x 30	MC18 x 58	
	To Ø 50	To Ø 45	To Ø 40	To Ø 45	To Ø 60	
Max Section modulus (in <sup>3</sup> ) 2):	0.7 - 1.4	1.4 - 3	3 - 6	5.5 - 9	12 - 21	2) Max Section modulus (in.
Diameter of standard rolls, top/side:	9.45*/9*	12,2"/10.8"	14"/11.8"	17.3"/16.1"	21.6"/18.1"	Diameter of standard rolls, top/sid
Diameter of top shaft/side shafts:	3*/2.55*	4"/3"	5.5"/4"	7"/6"	9.4"/7.8"	Diameter of top shaft/side shaft
Motor HP at 480 V for machine with CNC: 3	5 / 12 4)	12 / 17.5 4)	24	29.5	52	3) Motor HP at 480 V for machine with CNC

- 1) Minimum bending diameter depends on grade of deformations that can be accepted.
- 2) Depending bending diameter.
- 3) Motor output for main pump motor for standard rolling speed 0-7 m/min.
- 4) Motor output for main pump motor for version with increased rolling speed 0-10 m/min.
- = With Special Rolls

The capacities in this table are valid for circular bending in one or few passes. Capacities for pre-bending, please contact Roundo

#### **BEAM BENDING MACHINES**

This range of machines is specially developed for heavy beam bending, aiming for the highest possible demands of production speed, quality and capacity. With features like adjustable bending distance and simultaneous movement of pushing and pulling roll, the versatility of these machines is unique. The different ROUNDO models cover up to 915 in.3 section modulus and up to 43" beams over X-X axis.





ROUNDO 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 ROUNDO equipment, along with our never-ending process of developing and producing superior machines.

Together with Boldrini, ROUNDO 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 ROUNDO design.

ROUNDO 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 ROUNDO experience and know-how. Result are products that represent unique quality, performance and reliability on the global market.



#### **Registered Offices:**

Faccin S.p.A. - Via dell'Industria, 19 25010 Visano (BS) - Italy

#### Headquarters:

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