

The Winning Force

**DURMA**

# HRB SERIES Plate Roll Bending



# MRB & MRB-S SERIES Motorised Plate Roll Bending



- Strong
- Precise
- Efficient
- Fast
- High Repeatability



# **DURMA** The Winning Force



As a total supplier for sheet metal manufacturing with almost 60 years of experience, Durma understands and recognizes the challenges, requirements and expectations of the industry. We strive to satisfy the ever higher demands of our customers by continuously improving our products and processes while researching and implementing the latest technologies.

In our three production plants with a total of 150.000 m<sup>2</sup>, we dedicate 1,000 employees to delivering high quality manufacturing solutions at the best performance-to-price ratio in the market.

From the innovations developed at our Research & Development Center to the technical support given by our worldwide distributors, we all have one common mission: to be your preferred partner.

Present Durmazlar machines with **DURMA** name to the world.



	<b>1</b> High technology, modern production lines	
<b>2</b> Top quality components		<b>3</b> High quality machines designed in R&D Centre

# HRB-4 Series Plate Rolls

“Fast, Accurate and Easy to Operate”

Four plate rolls are more precise, productive, versatile, faster, safer and easier to operate than three roll machines. They are less dependent on operator competence. Ideal for bending plates up to 200 mm thick.

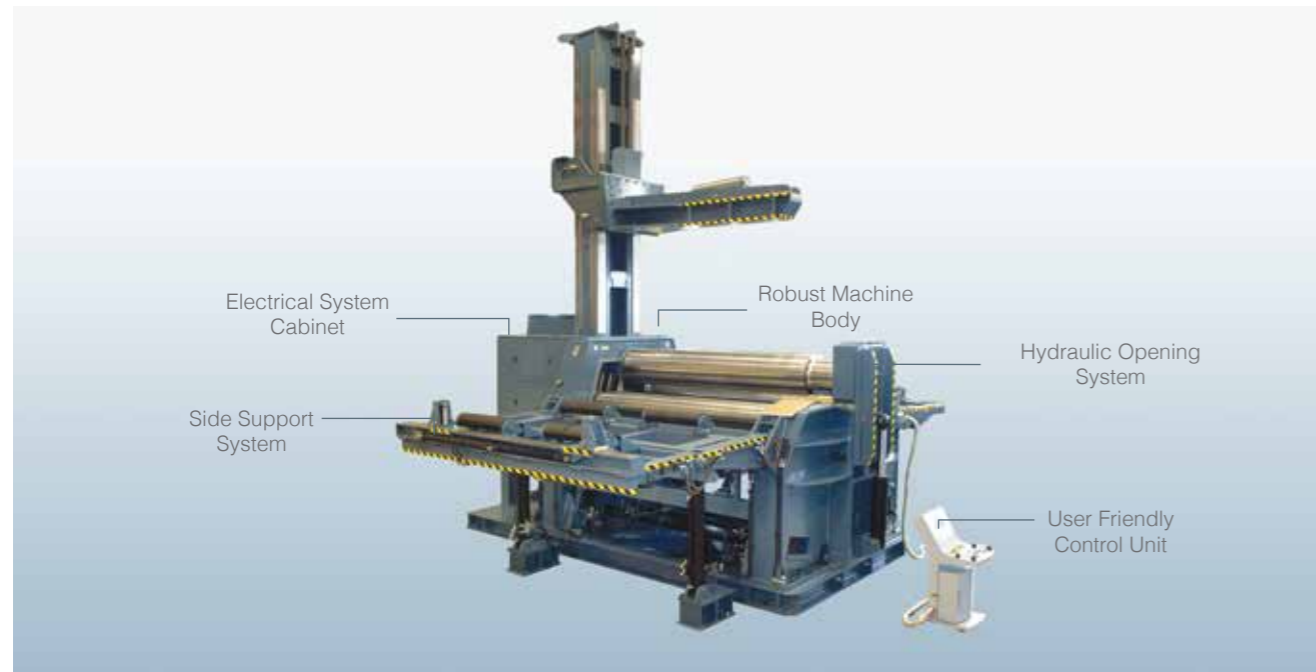


- Fast and Reliable
- Efficient Cycle Times
- User Friendly, Easy to Operate
- Increased Productivity
- Up to 200 mm Bending Thickness

# Finest Bending Performance

“Durma always strives to be your preferred partner”

Robust machine body and construction ensure long machine life and low maintenance. High torque drive system allows HRB to achieve shorter cycle times. User friendly control units makes it possible to be less dependant on operator competence.



## General Specifications

- Up to 8000 mm Bending Lengths
- Up to 200 mm Bending Thickness
- Accurate, Easy to Operate, Fast and Reliable
- Flat zone of the part is minimized
- Pre-bending, conical bending and ellipse bending can be done easily
- Double pre-bends (both ends) in one pass
- The sheet reference is maintained by tightening of top and bottom rolls
- Most desirable bending operation for CNC applications
- More efficient for cycle times
- Hydraulic and electrical systems have been safeguarded from overloading and require minimum maintenance.
- Hydraulic and electrical components are modual and designed according to world standards

## HRB Series Standard Features

### Robust Body Structure

Machine's body is strengthened and lowered to minimise the twists and deformation. Machine body, frame and steel bar connections are stress relieved after the welding operation.



### Planetary Swing Rolls System

Side rolls are guided by swing beds which allows them to act as 2 independent axes moving on curve shape orbits. Side rolls are approaches to the top roll on curve movement which allows to get perfect prebendings as well as spring back minimisation. (Rectilinear Rolls System designed for top roll dia more than 460 mm)



### High Torque Drive System

High Torque Drive System enables Durma roller bending machines to bend metal sheets with less steps. HRB-4 machines has top and bottom rolls powered by planetary reducer, hydraulic motor and gear system. HRB-3 machines has top and side rolls powered by planetary reducer, hydraulic motor and gear system. Strong Hydraulic Brake system does not allow the sheet to slip back. Pressure safety valves are protecting the hydromotor and other components from overloads and peak pressures.



### Hydraulic Opening

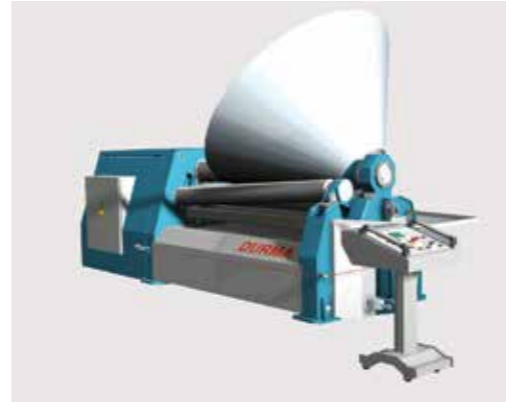
Hydraulic opening drop-end for easy remove completed the bending.



# HRB Series Standard Features

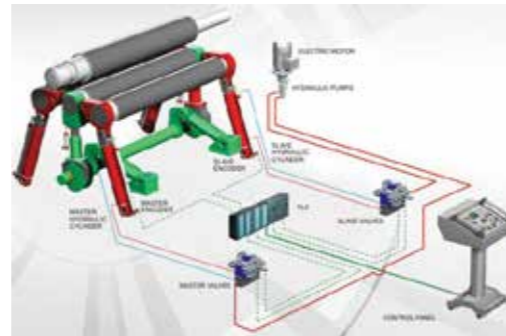
## Conical Bending System

Strong body and angular bottom and side rolls enables to easily conical bend materials. While machile machines in the market bends conical 3 times of top roll diameter, Durma HRB machines can bend 1.5 times easily.



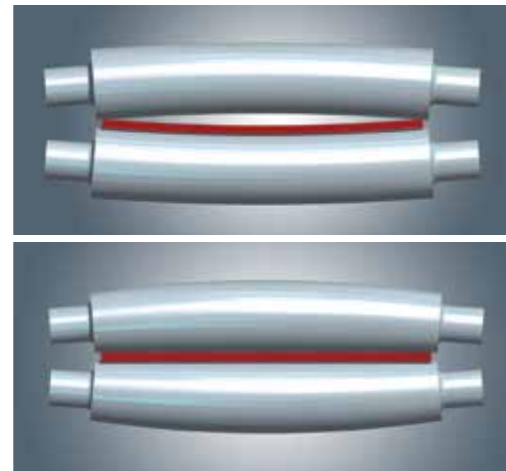
## Synchronized Rolls System

Side rolls triggered by 4 different strong hydraulic cylinders. Synchronisation between Thanks to high precision load holding valves. Bottom roll tightens different thickness of sheets without deformation and taking to the consideration of its paralelism by hydraulic adjustable pressure torsion bar.



## Hardened Rolls And Crowning System

Highly durable carbon steel (C45) rolls are machined by CNC Lathes with high precision without creating notch effect. Working surfaces of the rolls are induction hardened to HRC 54±2. Rolls are machined as crowning shape to compensats the deflections on the rolls during the bending.



## Strengthen Bearing System

Rolls are guided with spherical roller bearings and bronze housings. Guiding system requires less lubrication and keeps it precision in long term.



## Hydraulic System

Rolls are positioned by hydraulic components. The precision of axes are maintained through the use of Bosch Rexroth valves. Pressure safety valves protect against peak pressures and overloads.



## Electrical and Electronic System

Electrical system is designed compatible with CE safety regulations. The system consists of well known electrical components. The system is protected by current overloa- dings for its components, power supplies and motors.



## User Friendly Control Unit

The standard control unit ensures that machine's bottom and side rollers operate smoothly.



User Friendly Control Unit HRB-3



User Friendly Control Unit HRB-4

# HRB Series Optional Features

## NC Control Unit (HRB-4)

In addition to standard user friendly control unit, all bending steps are recorded for operator in teaching mode. All recorded movements can be repeated using automatic mode. NC control system has capacity to save 70 programs up to 100 steps each.



## CNC Control Unit (HRB-4)

CNC control unit features a graphical control system that enables the operator to realize the bending step by step or automatically calculate bending process. It includes a bending library that features polysentric and ellipse bending shapes.



## Vertical and Side Support System

Optional hydraulic side and vertical supports the sheet's stretch and prevent deterioration of the bending form in big shaped bending.

Moveable gauges with hydraulic double cylinders are produced from St52 steel construction. Sheet is easy sliding movement on supports by support rollers which is housing by bearings.

Each support can be controlling from control panel separately. It is possible to vertical support's capacity is to provide  $\varnothing 2000$  mm to  $\varnothing 6000$ mm sheet and 4 ton to 6 ton capacities. Vertical and side support system can be controlling automatically NC mod in CNC and NC machines.



Especially the during bendings of the large diameter and thin material ellipse, parallel corners and polycentric shaped may effect the precisions and can cause deformation of the material, when there is not enough support

from the standard sheet support systems the double knuckle side support system may interfere and provides a precise and perfect bendings, if need the sizes of these support can be build according to the customers request.



# HRB Series Special Features

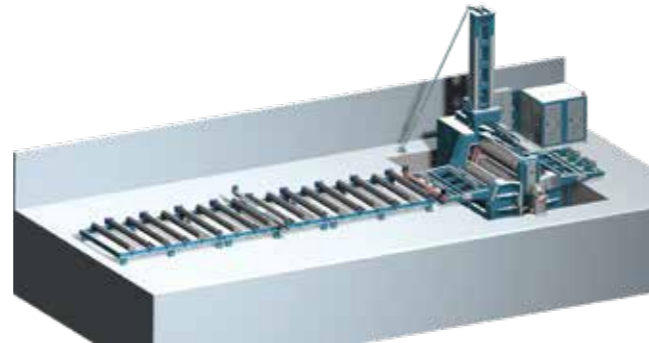
Full automatic bending line with loading and unloading



Anguler Material Feeding System

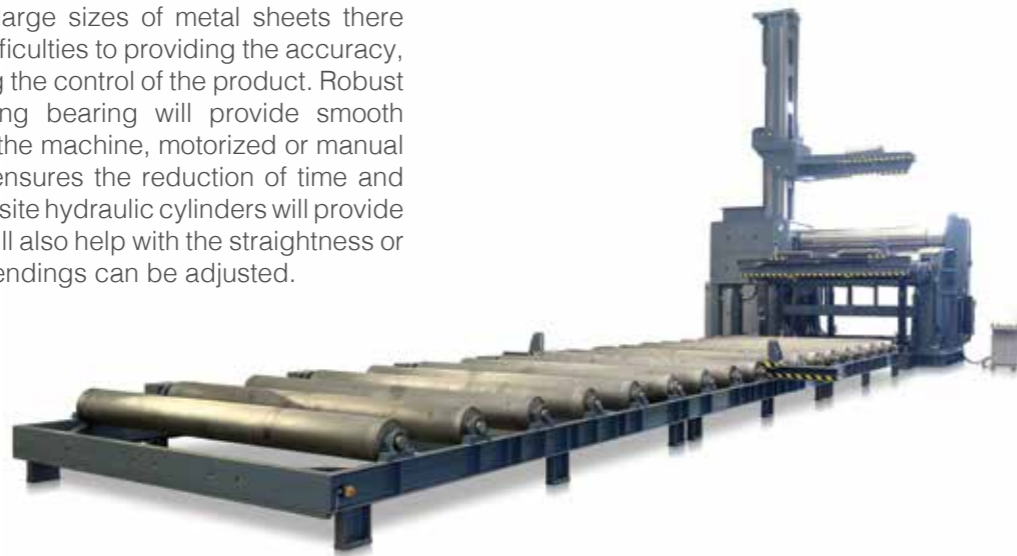


Wind tower bending line



Material Feeding and Lip Alignment System

With the long and large sizes of metal sheets there may always have difficulties to providing the accuracy, placing and keeping the control of the product. Robust Bearing and housing bearing will provide smooth movement towards the machine, motorized or manual feeding tables also ensures the reduction of time and easy process. Opposite hydraulic cylinders will provide correctioning and will also help with the straightness or if needed conical bendings can be adjusted.



Special solution for corrugated sheet



Automatic Sheet Extraction System



# Standard & Optional Equipment

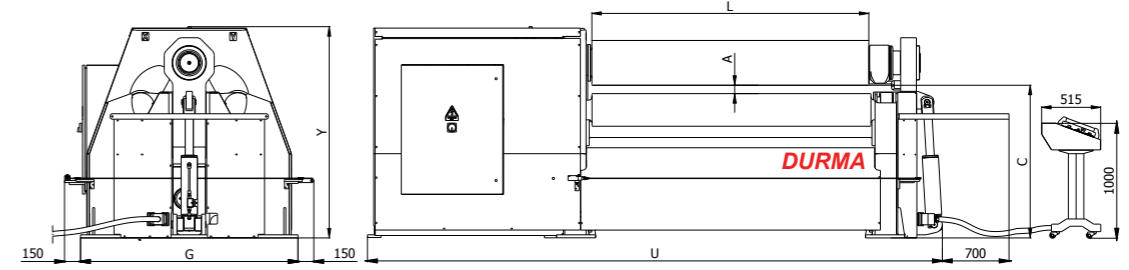
## Standard Equipments

- PLC control system
- Adjustable turning speed
- Conical bending
- Induction hardened rolls
- Stress relieved steel construction body
- High tensile carbon steel rolls
- Sealed spherical roller bearings
- 2 rolls drive system (Upper roll Ø 200 mm - Ø 460 mm)
- 4 rolls drive system (Upper roll > Ø 460 mm)
- Fixed top roll (Upper roll Ø 200 mm - Ø 460 mm)
- Hydraulic opening cover
- Welding possibility on the machine
- Electronic synchronized rolls
- Mechanical synchronized bottom rolls
- Adjustable pinching pressure
- Overload protection
- Safety wire around the machine and emergency stop button on control panel
- Manual lubrication
- User manual
- CE

## Optional Equipments

- NC Control Unit
- CNC Control Unit
- Polished rolls
- Hydraulic vertical support preparation (Full / Mechanical)
- Hydraulic vertical support
- Side support preparation (Full / Mechanical)
- Hydraulic side supports
- Hydraulic side supports with double joint
- NC included side and vertical supports
- Interchangable top roll
- Oil cooling
- Oil heating
- Automatic centralized lubrication system
- Plate feeding platform with alignment unit
- Special plate support systems
- Loading, unloading systems
- Seperate power cabinet
- Special solutions for wind tower projects

# HRB-4 Technical Specifications



HRB-4 type	Bending Length	Min. Int. Dia Ø Dmin				Top Roll	Bottom Roll	Side Rolls	Length	Width	Height	Working Height	Weight	Motor Power	Hydraulic Tank Capacity
		Ødx5		Ødx1,5											
		Bending Capacities	Bending Capacities	Pre-Bending Capacities	Pre-Bending Capacities										
	L (mm)	s (mm)	s (mm)	S (mm)	S (mm)	Ø (mm)	Ø (mm)	Ø (mm)	U (mm)	G (mm)	Y (mm)	C (mm)	(kg)	(kW)	l
HRB-4 15150	1550	6	5	5	4	150	150	130	3100	970	1140	875	2490	5,5	90
HRB-4 15170	1550	8	6	6	5	170	170	150	3100	970	1140	865	2850	5,5	90
HRB-4 20150	2050	5	4	4	3	150	150	130	3600	970	1140	875	2600	4	90
HRB-4 20170	2050	6	5	5	4	170	170	150	3600	970	1140	865	2750	5,5	90
HRB-4 20200	2050	8	6	6	5	200	200	190	3830	1160	1200	840	4350	7,5	160
HRB-4 20220	2050	10	8	8	6	220	220	180	3830	1160	1200	830	4650	7,5	160
HRB-4 20240	2050	13	10	10	8	240	240	190	3830	1160	1200	820	5000	11	160
HRB-4 20260	2050	16	13	13	10	260	260	230	4260	1660	1600	1160	7800	15	400
HRB-4 20270	2050	18	15	15	12	270	270	230	4260	1660	1600	1155	8050	15	400
HRB-4 20280	2050	20	16	16	13	280	280	240	4260	1660	1600	1150	8300	18,5	400
HRB-4 20300	2050	23	18	18	15	300	300	240	4260	1660	1600	1140	8800	18,5	400
HRB-4 20320	2050	25	20	20	16	320	320	250	4260	1660	1600	1130	9100	22	400
HRB-4 20340	2050	28	23	23	18	340	340	260	4260	1660	1600	1120	9800	22	400
HRB-4 20360	2050	30	25	25	20	360	360	270	4510	2060	2050	1510	14200	30	600
HRB-4 20380	2050	40	30	30	25	380	380	290	4510	2060	2050	1500	15100	30	600
HRB-4 20400	2050	45	35	35	30	400	400	300	4510	2060	2050	1490	16000	37	600
HRB-4 20460	2050	50	40	40	35	460	460	380	4710	2210	2170	1590	18000	45	800
HRB-4 25200	2550	6	5	5	4	200	200	190	4330	1160	1200	840	5000	7,5	160
HRB-4 25220	2550	8	6	6	5	220	220	180	4330	1160	1200	830	5350	7,5	160
HRB-4 25240	2550	10	8	8	6	240	240	190	4330	1160	1200	820	5700	11	160
HRB-4 25260	2550	13	10	10	8	260	260	230	4760	1660	1600	1160	8650	15	400
HRB-4 25270	2550	15	12	12	10	270	270	230	4760	1660	1600	1155	8950	15	400
HRB-4 25280	2550	16	14	14	12	280	280	240	4760	1660	1600	1150	9300	18,5	400
HRB-4 25300	2550	20	16	16	13	300	300	240	4760	1660	1600	1140	9800	18,5	400
HRB-4 25320	2550	23	18	18	15	320	320	250	4760	1660	1600	1130	10500	22	400
HRB-4 25340	2550	25	20	20	16	340	340	260	4760	1660	1600	1120	11200	22	400
HRB-4 25360	2550	28	23	23	18	360	360	270	5010	2060	2050	1510	15200	30	600
HRB-4 25380	2550	30	25	25	20	380	380	290	5010	2060	2050	1500	16050	30	600
HRB-4 25400	2550	40	30	30	25	400	400	300	5010	2060	2050	1490	16600	37	600
HRB-4 25460	2550	45	35	35	30	460	460	380	5210	2210	2170	1590	20000	45	800
HRB-4 30220	3100	6	5	5	4	220	220	180	4880	1160	1200	830	5900	7,5	160
HRB-4 30240	3100	8	6	6	5	240	240	190	4880	1160	1200	820	6450	11	160
HRB-4 30260	3100	10	8	8	6	260	260	230	5310	1660	1600	1160	9700	15	400
HRB-4 30270	3100	13	10	10	8	270	270	230	5310	1660	1600	1155	10550	15	400
HRB-4 30280	3100	15	12	12	10	280	280	240	5310	1660	1600	1150	10550	18,5	400
HRB-4 30300	3100	16	14	14	12	300	300	240	5310	1660	1600	1140	11100	18,5	400
HRB-4 30320	3100	20	16	16	13	320	320	250	5310	1660	1600	1130	11400	22	400
HRB-4 30340	3100	23	18	18	15	340	340	260	5310	1660	1600	1120	12000	22	400
HRB-4 30360	3100	25	20	20	16	360	360	270	5560	2060	2050	1510	16750	30	600
HRB-4 30380	3100	28	23	23	18	380	380	290	5560	2060	2050	1500	18000	30	600
HRB-4 30400	3100	30	25	25	20	400	400	300	5560	2060	2050	1490	18800	37	600
HRB-4 30460	3100	40	30	30	25	460	460	380	5760	2210	2170	1590	22000	45	800
HRB-4R 30460	3100	45	35	35	30	460	440	360	5690	2280	2375	1770	31500	37+22	850
HRB-4R 30480	3100	50	40	40	35	480	455	370	5690	2280	2375	1760	35000	45+22	850
HRB-4R 30520	3100	60	45	45	40	520	500	410	6085	2630	2790	2045	45000	2x37+30	1100
HRB-4R 30580	3100	70	55	55	45	580	560	440	6085	2630	2790	2015	50000	2x37+30	1100
HRB-4R 30650	3100	80	60	60	50	650	610	500	6370	3240	3660	2825	72000	2x45+11	1700
HRB-4R 30760	3100	100	80	80	70	760	720	600	7100	3800	4290	3333	110000	2x55+11	2200
HRB-4 40280	4100	8	6	6	4	280	280	240	6310	1660	1600	1150	11600	15	400
HRB-4 40320	4100	10	8	8	6	320	320	250	6310	1660	1600	1130	14000	18,5	400
HRB-4 40360	4100	12	10	10	8	360	360	270	6560	2060	2050	1510	19500	22	600
HRB-4 40380	4100	16	12	12	10	380	380	290	6560	2060	2050	1500	20500	30	600
HRB-4 40400	4100	20	16	16	12	400	400	300	6560	2060	2050	1490	22000	37	600
HRB-4 40460	4100	25	20	20	16	460	460	380	6760	2210	2170	1590	25000	45	800
HRB-4R 40460	4100	30	25	25	20	460	440	360	6690	2280	2375	1770	39000	37+22	850
HRB-4R 40480	4100	40	30	30	25	480	455	370	6690	2280	2375	1760	43000	45+22	850
HRB-4R 40520	4100	45	35	35	30	520	500	410	7085	2630	2790	2045	50000	2x37+30	1100

Bending capacities valid for multisteps bending method.  
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The mentioned values above is only works for 240 N/mm²  
 Different material and widths ; can be calculated by DURMA Roll Bending Calculator  
 Conic bending capacities depends on the angle and half value of mentioned values above  
 Weight and motor powers optionally goes higher levels with additional



PLANETARY ROLLS SYSTEM  
 Top Roll: Ø 140-Ø460 mm  
 Drive: Top&Bottom



HRB-4R RECTILINEAR ROLLS SYSTEM  
 Top Roll: Ø 460-Ø760 mm  
 Drive: All Rolls



# HRB-3 Series Plate Rolls

## “Fast, Accurate and Easy to Operate”

Hydraulics Plate 3-Roll Bending Machine  
 Flexibility of 3 roll for medium sizes by Durma technology  
 Prebending of both the leading and trailing edge



- Flexible machine for medium to thick material
- Cost effective solutions for large diameters
- Wide working range
- Excellent for rolling cones
- Great value for precision and reliability
- All rolls are driven with superior torque and speed

### Standard Equipments

- PLC control system
- Conical bending
- Induction hardened rolls
- Stress relieved steel construction body
- High tensile carbon steel rolls
- Sealed spherical roller bearings
- 3 rolls drive system
- Fixed top roll and hydraulic opening cover
- Welding possibility on the machine
- Electronic synchronized rolls
- Overload protection
- Safety wire around the machine and emergency stop button on control panel
- Manual lubrication
- User manual
- CE

## HRB-3 Technical Specifications

HRB-3 Serie	Bending Length	Min. Int. Dia. ØDmin			Top Roll	Side Rolls	Max. Pass Through	Length	Width	Height	Working Height	Weight	Motor Power	Min. Additional top roll diameter	Hydraulic Tank Capacity
		Ødx5	Ødx3	Ødx1,5											
		Bending Capacities	Bending Capacities	Pre-Bending Capacities											
L (mm)	S (mm)	S (mm)	s (mm)	Ød (mm)	Ø (mm)	A (mm)	U (mm)	G (mm)	Y (mm)	C (mm)	(kg)	(kW)	Ø (mm)	l	
HRB-3 2013	2050	15	13	10	230	200	70	3830	1160	1180	825	3800	11	200	160
HRB-3 2016	2050	18	16	13	270	250	140	4260	1660	1590	1155	6850	15	270	400
HRB-3 2510	2550	12	10	8	230	200	70	4330	1160	1180	825	4350	11	200	160
HRB-3 3010	3100	12	10	8	270	250	140	5310	1660	1590	1155	8280	11	270	400
HRB-3 3013	3100	15	13	10	300	270	115	5310	1660	1590	1140	9200	15	270	400
HRB-3 3016	3100	18	16	13	330	290	90	5310	1660	1590	1125	9850	18.5	270	400
HRB-3 3020	3100	22	20	16	360	330	195	5560	2060	2050	1510	14900	22	360	600
HRB-3 3025	3100	28	25	20	400	350	165	5560	2060	2050	1490	16150	30	360	600

The mentioned values above is only works for 240 N/mm<sup>2</sup>  
 Different material and widths - can be calculated by DURMA Roll Bending Calculator  
 Conic bending capacities depends on the angle and half value of mentioned values above  
 Weight and motor powers optionally goes higher levels with additional

### Optional Equipments

- Polished rolls
- Adjustable turning speed
- Vertical or horizontal working position
- Hydraulic vertical support preparation (Full / Mechanical)
- Hydraulic vertical support
- Hydraulic Side support preparation (Full / Mechanical)
- Hydraulic side supports
- Hydraulic side supports with double joint
- Interchangeable top roll
- Longer rolls for profile bending and special bending rolls
- Oil cooling
- Oil heating
- Automatic centralized lubrication system
- Plate feeding platform with alignment unit
- Special plate support systems
- Loading, unloading systems
- Separate power cabinet



PLANETARY ROLLS SYSTEM  
 Top Roll: Ø200-Ø430 mm  
 Drive: All Rolls

# MRB-S Series Plate Rolls

## Motorised Assymetrical 3 Roll Machine

Especially for thinner sheets with small lot sizes  
 Easy prebending thanks to top & bottom rolls tighten the workplace  
 Cost-oriented solutions for small and medium enterprises  
 Wide range of industrial usage



MRB-S	Unit	1506	2005	2006	2504	2506	2508	3004	3006
Bending Length	mm	1530	2030	2030	2530	2530	2530	3030	3030
Bending Capacity	mm	6	5	6	4	6	8	4	6
Pre Bending	mm	4	4	5	3	4	6	2	4
Tolp roll Ø	mm	150	160	170	170	190	220	180	220
Motor Power	kW	4	4	4	4	5,5	5,5	4	5,5
Length	mm	3100	3600	3600	4100	4250	4250	4600	4750
Height	mm	1120	1120	1120	1120	1200	1200	1120	1200
Width	mm	1020	1020	1020	1020	1150	1150	1020	1150
Weight	kg	2100	2300	2400	2700	3750	4430	4250	4920

# MRB Series Plate Rolls

## Motorised 3 Roll Machine

MRB Series	Unit	1004	1204	1503	1504	2004
Bending Length	mm	1030	1280	1530	1530	2030
Bending Capacity	mm	4	4	3	4	4
Pre Bending	mm	3	3	2	3	2,5
Tolp roll Ø	mm	110	120	110	130	140
Motor Power	kW	2,2	2,2	2,2	2,2	2,2
Length	mm	1900	2150	2400	2400	2900
Height	mm	1120	1120	1120	1120	1120
Width	mm	940	940	940	940	940
Weight	kg	1195	1345	1388	1425	1565

### Standard Equipment

CE  
 Conical bending  
 Motorised back roll  
 Top & Bottom rolls gear driven  
 Pendant command panel  
 SAE 1050 steel rolls  
 Induction hardened rolls  
 Stress relieved steel construction  
 Support on 2,5 and 3 m machines  
 Brake system for precise bendings

### Optional Equipment

Digital readout  
 Motorised bottom roll tightening  
 Ground rolls  
 Roll extension for profile bending  
 Special rolls for profile bending  
 Special packing for overseas shipments

### Standard Equipment

CE  
 Conical bending  
 Motorised back roll  
 Top & Bottom rolls gear driven  
 Pendant command panel  
 SAE 1050 steel rolls  
 Induction hardened rolls  
 Stress relieved steel construction  
 Support on 2,5 and 3 m machines  
 Brake system for precise bendings

### Optional Equipment

Digital readout  
 Motorised bottom roll tightening  
 Ground rolls  
 Roll extension for profile bending  
 Special rolls for profile bending  
 Special packing for overseas shipments

## Fast on Service and Spare Parts

DURMA provides the best level of service and spare parts with qualified personnel and spare parts in stock. Our experienced and professional service personnel are always ready at your service. Our professional training and application enriched courses will give you an advantage to use our machinery.



Consultancy



Spare Parts



R&D Center



After Sales Service



Service Agreements



Software



Training



Flexible Solution

**DURMA**

**DURMA**



PANEL BENDER



PUNCH



PRESS BRAKE



VARIABLE RAKE SHEAR



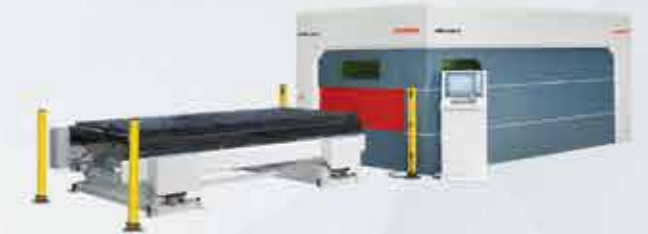
PLASMA



L ANGLE PROCESSING CENTER



TUBE LASER CUTTING



FIBER LASER



IRON WORKER



POWER OPERATED SHEAR



ROLL BENDING



PROFILE BENDING



CORNER NOTCHER

# **DURMA**

Today, Tomorrow, Forever...

**HRB** SERIES  
Plate Roll Bending

**MRB & MRB-S** SERIES  
Motorised Plate Roll Bending