

# HRB

Plate Roll  
Bending

Series



➤ Strong

➤ Precise

➤ Efficient

➤ Fast

➤ High  
Repeatability



As a total supplier for sheet metal manufacturing with almost 70 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 1.614.586 ft<sup>2</sup>, we dedicate 1,000 employees to delivering high quality manufacturing solutions at the best performance-to-price ratio in the market.



# PRODUCTION IS MORE EFFECTIVE NOW



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.

**Durmazlar offers it's machines to the world markets under the Durma brand.**



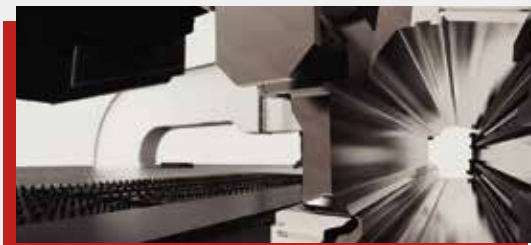
1

High technology,  
modern production  
lines



2

Top quality  
components



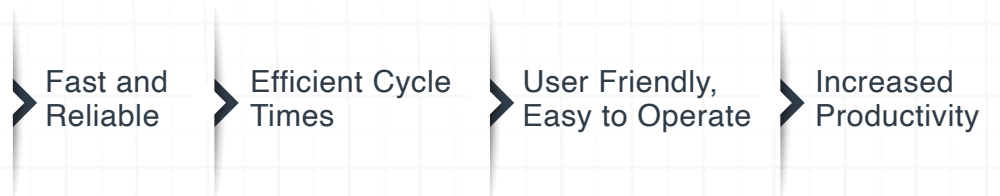
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High quality  
machines designed  
in R&D Centre

## HRB-4 Series Plate Rolls

“Fast, Accurate and Easy to Operate”

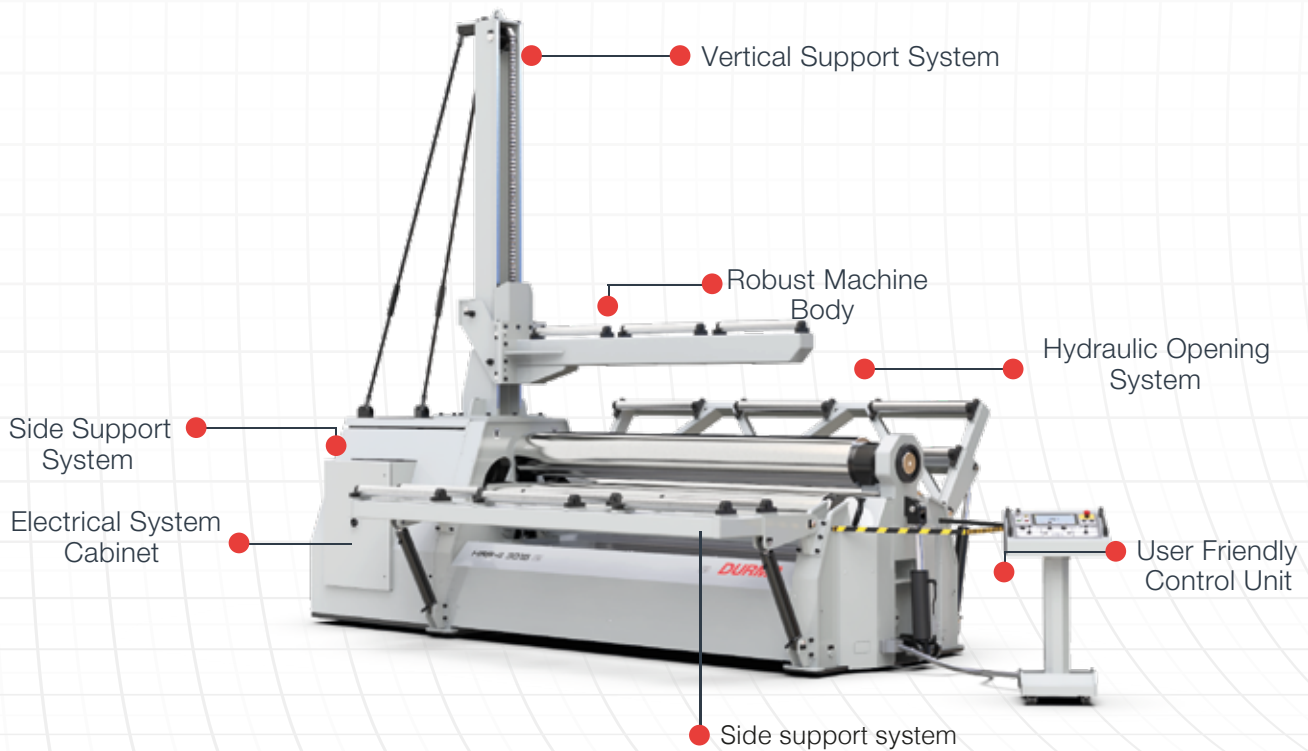
Four plate rolls are more precise, productive, versatile, faster, safer and easier to operate than three roll machines. They are less dependent on operator competence.



## 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 9'8.4" Bending Lengths
- Up to 1.77" 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 modular and designed according to world standards

## HRB Series Standard Features

### ■ Solid 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.



**COST DOWN**  
**PROFIT UP**



# PRODUCTION IS MORE EFFECTIVE NOW

## ■ 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. 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.



## ■ Automatic Loading Gripper System

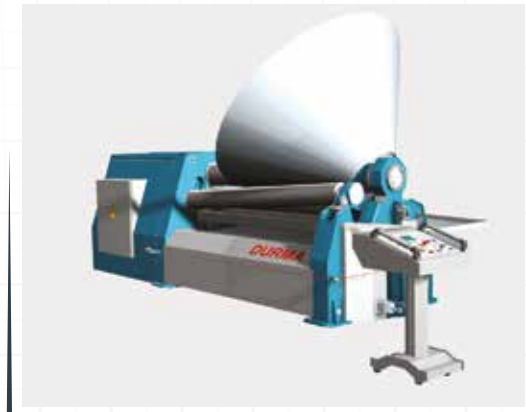
Hydraulic opening drop-end for easy remove completed the bending.



## HRB Series Standard Features

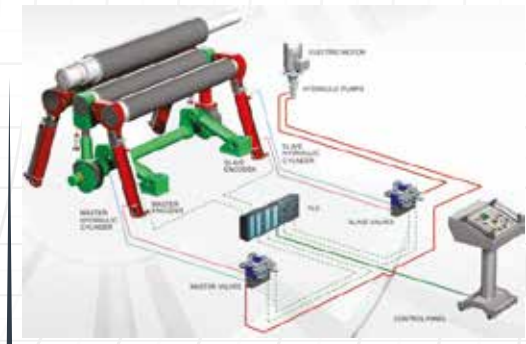
### ■ Conical Bending System

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



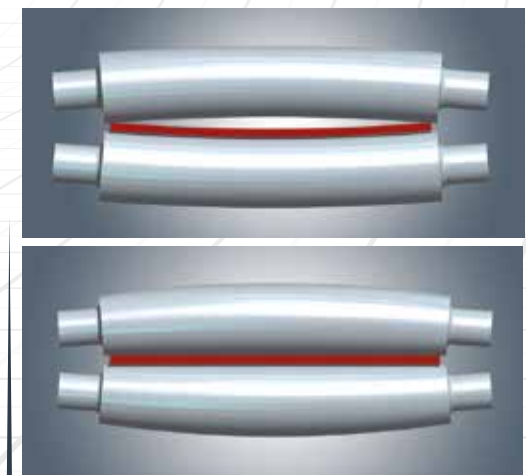
### ■ Synchronized Rolls System

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 $\pm$ 2. Rolls are machined as crowning shape to compensates 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 its 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 overloadings 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-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.

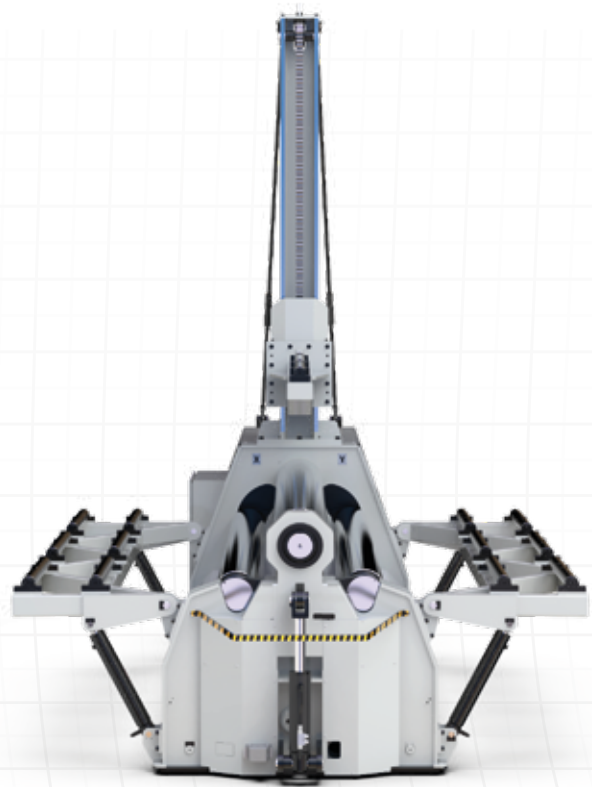


### ■ Vertical and Side Support System

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  $\varnothing 6'6.7"$  to  $\varnothing 19'8.2"$  sheet and 4.4 US tons to 6.6 US tons 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 needed the sizes of these support can be build according to the customers request.



## HRB Series Optional Features

■ Special Solution for Corrugated Sheet



■ Automatic Sheet Extraction System





Production is *More Effective Now.*

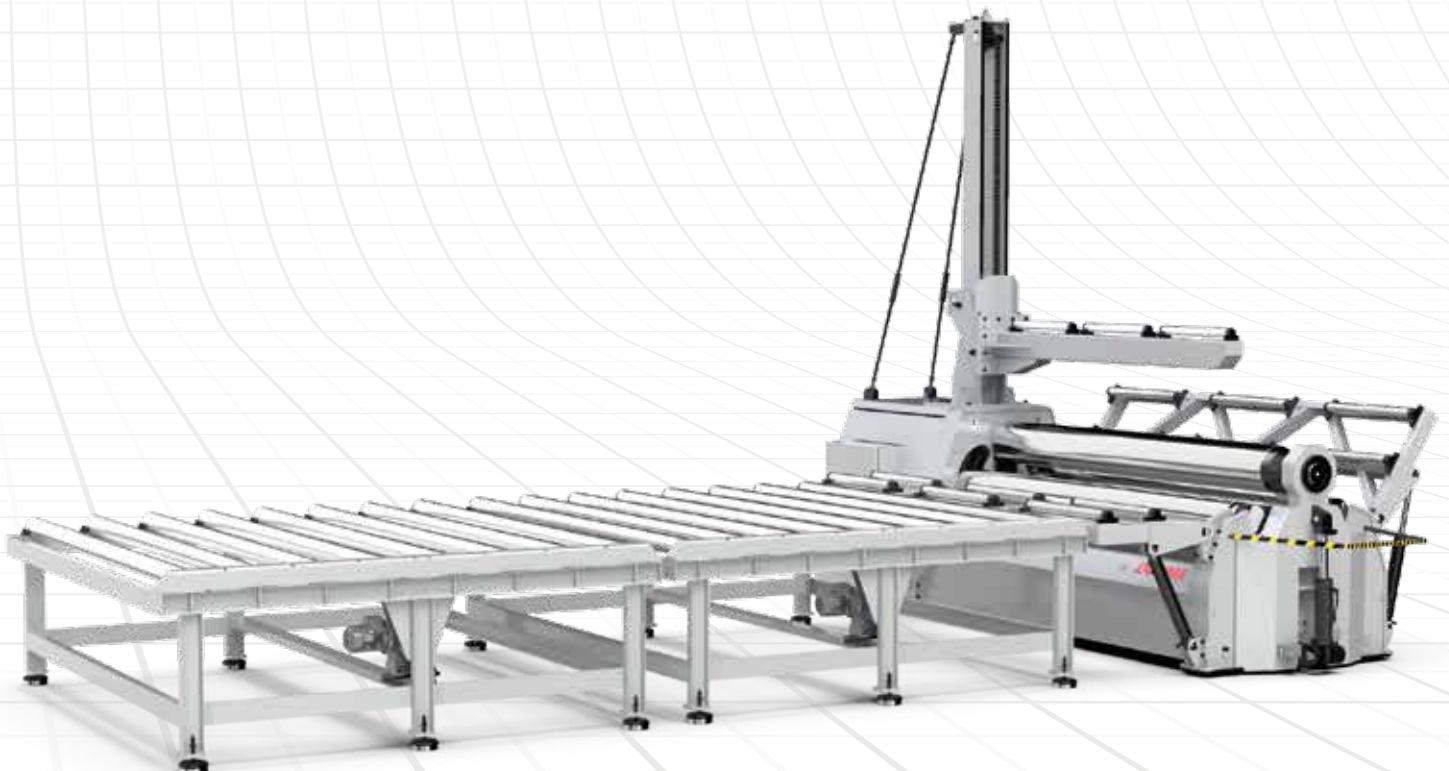
## HRB Series Special Features

- Full automatic bending line with loading and unloading



- Material Feeding and Lip Alignment System

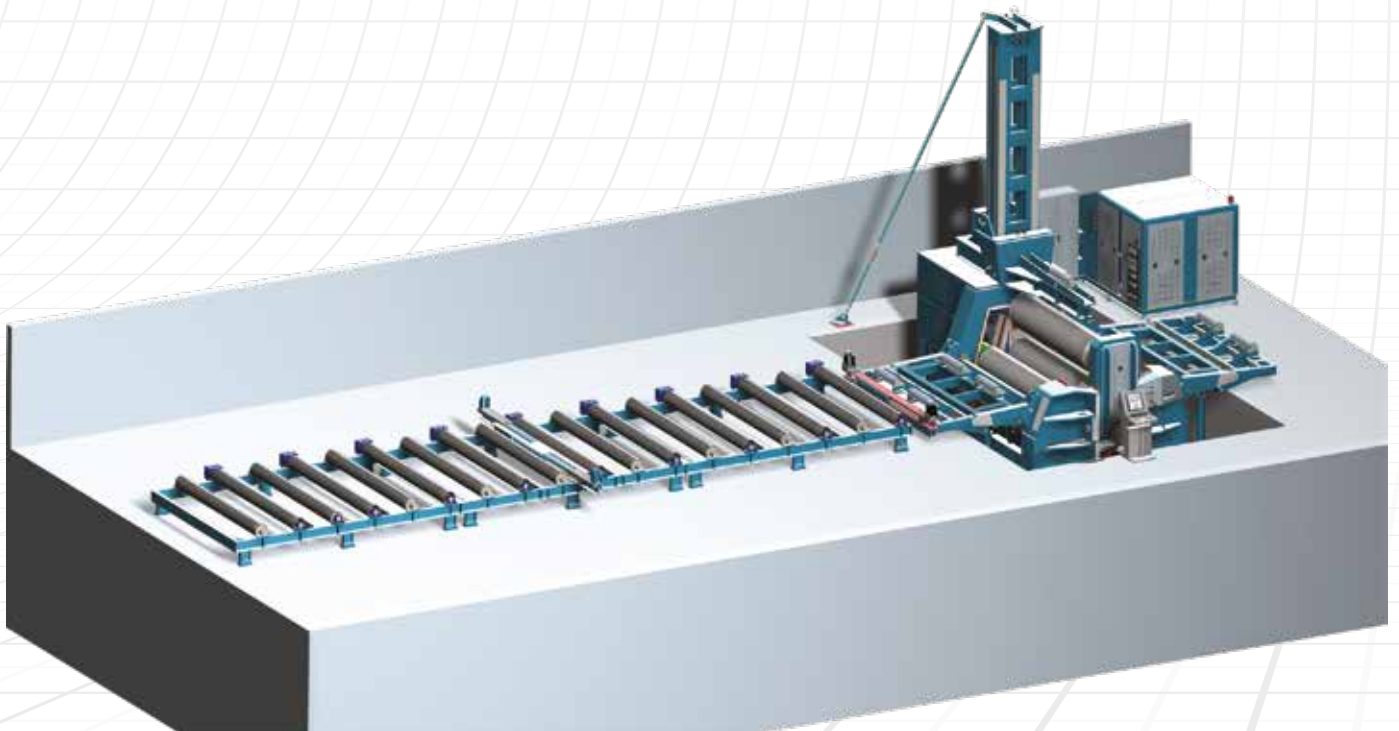
With the long and large sizes of metal sheets there may always have difficulties to providing the accuracy, placing and keeping the control of the product. Robust Bearing and housing bearing will provide smooth movement towards the machine, motorized or manual feeding tables also ensures the reduction 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.



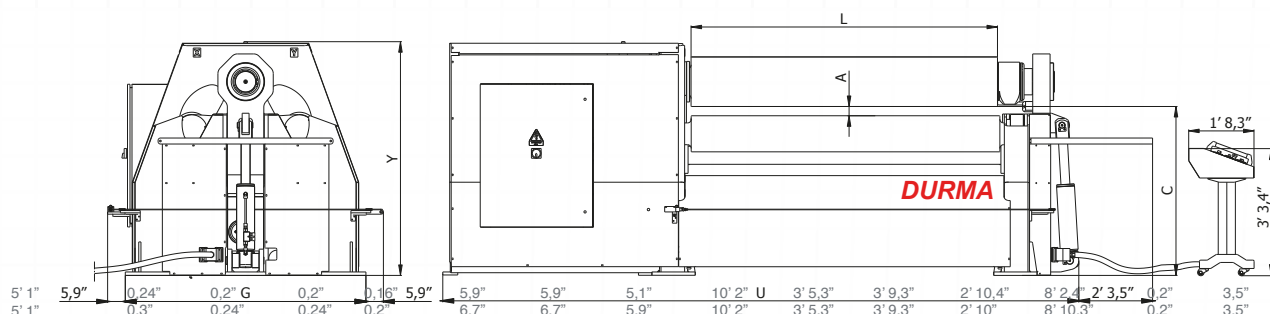
■ Angular Material Feeding System



■ Wind Tower Bending Line



# HRB-4 Technical Specifications



HRB-4 Series	Bending Length	Minimum Inside Diameter Ø Dmin				Top Roll	Bottom Roll	Side Rolls	Length	Width	Height	Working Height	Weight	Motor Power	Hydraulic Tank Capacity
		Ødx13/64"	Ødx1/16"	Ødx13/64"	Ødx1/16"										
		Bending Capacities	Bending Capacities	Pre-Bending Capacities	Pre-Bending Capacities										
	L (ft)	s (inch)	s (inch)	S (inch)	S (inch)	Ød (inch)	Ø (inch)	Ø (inch)	U (ft.)	G (ft.)	Y (ft.)	C (ft.)	lbs	hp	gal
HRB-4 15150	5'1"	15/64"	15/64"	13/64"	5/32"	5-29/32"	5-29/32"	5-1/8"	10'2"	3'5.3"	3'9.3"	2'10.4"	5490	7.4	23.8
HRB-4 20150	6'8.7"	13/64"	5/32"	5/32"	1/8"	5-29/32"	5-29/32"	5-1/8"	11'9.7"	3'5.3"	3'9.3"	2'10.4"	6175	5.4	23.8
HRB-4 20170	6'8.7"	15/64"	13/64"	13/64"	5/32"	6-11/16"	6-11/16"	5-29/32"	11'9.7"	3'5.3"	3'9.3"	2'10.1"	6835	7.4	23.8
HRB-4 20220	6'8.7"	25/64"	5/16"	5/16"	5/16"	8-21/32"	8-21/32"	7-3/32"	12'9.5"	4'2"	3'11.2"	2'8.7"	10140	14.7	42.3
HRB-4 20240	6'8.7"	33/64"	25/64"	25/64"	5/16"	9-29/64"	9-29/64"	7-31/64"	12'9.5"	4'2"	3'11.2"	2'8.3"	10805	14.7	42.3
HRB-4 20260	6'8.7"	5/8"	33/64"	33/64"	25/64"	10-15/64"	10-15/64"	9-1/16"	14'1.3"	5'5.4"	5'3"	3'9.7"	18080	20.1	105.7
HRB-4 20320	6'8.7"	63/64"	25/32"	25/32"	5/8"	12-19/32"	12-19/32"	9-27/32"	14'1.3"	5'5.4"	5'5"	3'10.1"	20945	29.5	105.7
HRB-4 20360	6'8.7"	1-3/16"	63/64"	63/64"	25/32"	14-11/64"	14-11/64"	10-5/8"	15'1.1"	6'9.1"	6'8.7"	4'11.4"	31305	40.2	158.5
HRB-4 20400	6'8.7"	1-49/64"	1-3/8"	1-3/8"	1-3/16"	15-3/4"	15-3/4"	11-13/16"	15'1.1"	6'9.1"	6'8.7"	4'10.7"	34725	49.6	158.5
HRB-4 25240	8'4.4"	25/64"	5/16"	5/16"	15/64"	9-29/64"	9-29/64"	7-31/64"	14'5.2"	4'2"	3'11.2"	2'8.3"	12345	14.7	42.3
HRB-4 25270	8'4.4"	19/32"	15/32"	15/32"	25/64"	10-5/8"	10-5/8"	9-1/16"	15'9"	5'5.4"	5'3"	3'9.5"	20615	20.1	105.7
HRB-4 25300	8'4.4"	25/32"	5/8"	5/8"	33/64"	11-13/16"	11-13/16"	9-29/64"	15'9"	5'5.4"	5'5"	3'10.5"	22485	24.8	105.7
HRB-4 25340	8'4.4"	63/64"	25/32"	25/32"	5/8"	13-25/64"	13-25/64"	10-15/64"	15'9"	5'5.4"	5'5"	3'9.7"	24915	29.5	105.7
HRB-4 30240	10'2"	5/16"	15/64"	15/64"	13/64"	9-29/64"	9-29/64"	7-31/64"	16'2.9"	4'2"	3'11.2"	2'8.3"	14000	14.7	42.3
HRB-4 30270	10'2"	33/64"	25/64"	25/64"	5/16"	10-5/8"	10-5/8"	9-1/16"	17'6.6"	5'5.4"	5'3"	3'9.5"	22710	20.1	105.7
HRB-4 30300	10'2"	5/8"	35/64"	35/64"	15/32"	11-13/16"	11-13/16"	9-29/64"	17'6.6"	5'5.4"	5'5"	3'10.5"	24800	24.8	105.7
HRB-4 30360	10'2"	63/64"	25/32"	25/32"	5/8"	14-11/64"	14-11/64"	10-5/8"	18'6.4"	6'9.1"	6'8.7"	4'11.4"	37920	40.2	158.5
HRB-4 30400	10'2"	1-3/16"	63/64"	63/64"	25/32"	15-3/4"	15-3/4"	11-13/16"	18'6.4"	6'9.1"	6'8.7"	4'10.7"	42330	49.6	158.5
HRB-4 30460	10'2"	1-37/64"	1-3/16"	1-3/16"	63/64"	18-7/64"	18-7/64"	14-61/64"	18'6.4"	6'10.7"	7'9.7"	5'10.5"	57320	60.3	211.3

Bending capacities valid for multisteps bending method.

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\* On mentioned models : Ø Dmin= Ødx2 (pre bending) ; Ødx4 (bending)

The mentioned values above is only works for 34809 psi

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

## STANDARD & OPTIONAL EQUIPMENT

### Standard Equipments

- PLC Control System
- Conical Bending
- Induction Hardened Rolls
- Stress Relieved Steel Construction Body
- High Tensile Carbon Steel Rolls
- Sealed Spherical Roller Bearings
- Adjustable Turning Speed
- 2 Rolls Drive System (Upper roll Ø 7.87 inch - Ø 18.11 inch)
- Fixed Top Roll (Upper Roll Ø 5.91 inch - Ø 16.93 inch)
- Hydraulic Opening Cover
- Welding Possibility on the Machine
- Mechanical Synchronized Bottom Rolls
- Electronic Synchronized
- Adjustable Pinching Pressure
- Overload Protection
- Safety Wire Around the Machine and Emergency Stop Button on Control Panel
- Manual Lubrication
- CE Safety Certificate
- User Manual

### Optional Equipments

- DURMA NC Control - Touch Screen 10" (incl. Variable speed)
- DURMA CNC Control - Touch Screen 15" (incl. Variable speed)
- Polished Rolls
- Hydraulic Vertical Support
- Hydraulic Side Supports
- NC Included Side and Vertical Supports
- Oil Cooling / Oil Heating
- Automatic Centralized Lubrication System
- Plate Feeding Platform with Alignment Unit
- Special Plate Support Systems
- Loading - Unloading Systems
- Special Solutions for Wind Tower Projects



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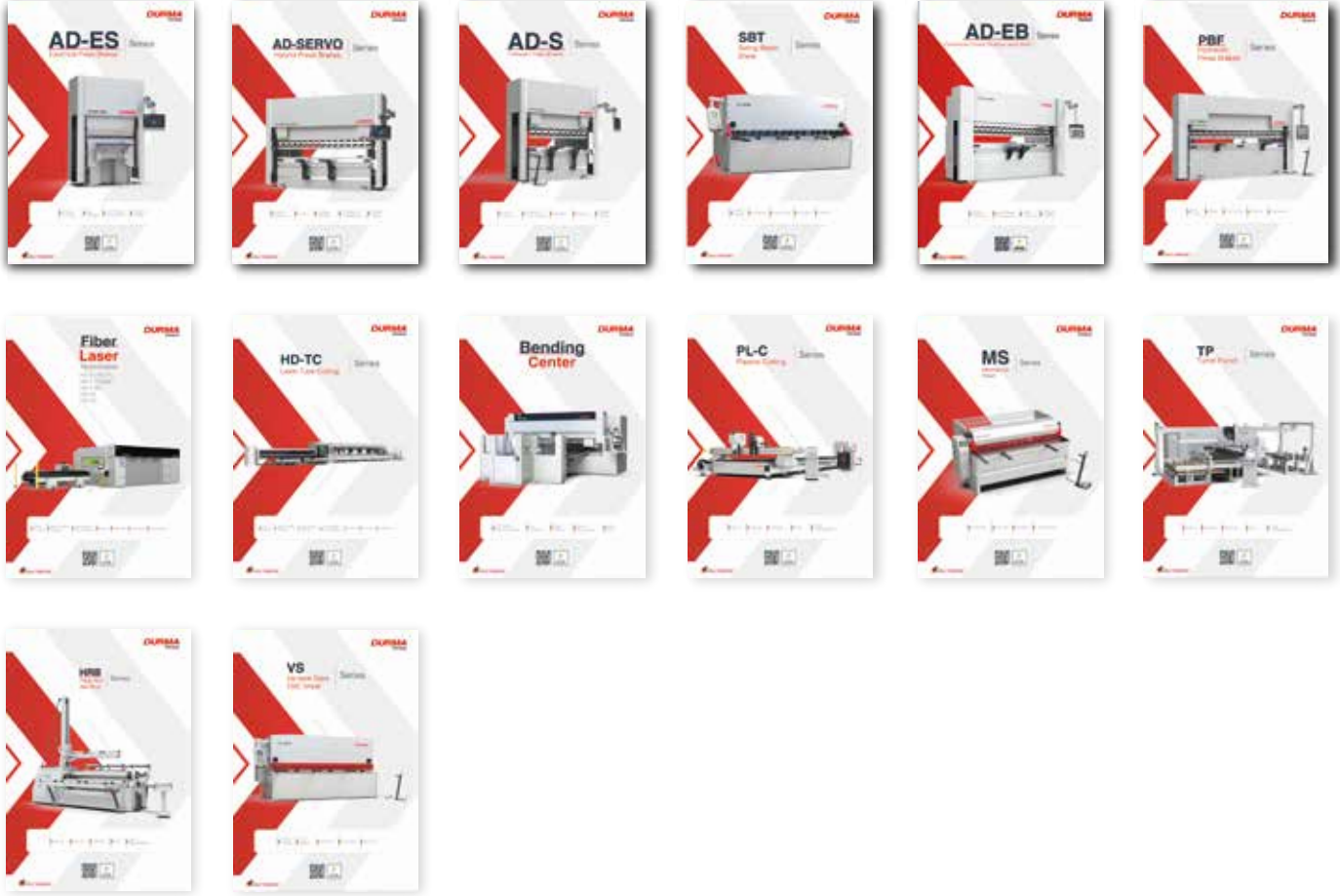
# FAST ON SERVICE AND SPARE PARTS

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.



# Product Groups

# **DURMA**



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