PBH

HYDRAULIC PROFILE BENDING MACHINE

PBH 125

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ADVANTAGES OF PROFILE BENDING MACHINE

● In today's world most easy, fast and best result profile bend made with 3 roll machines. At principle, profile that stuck between top and two bottom roll is bended with up and down movement of bottom rolls.

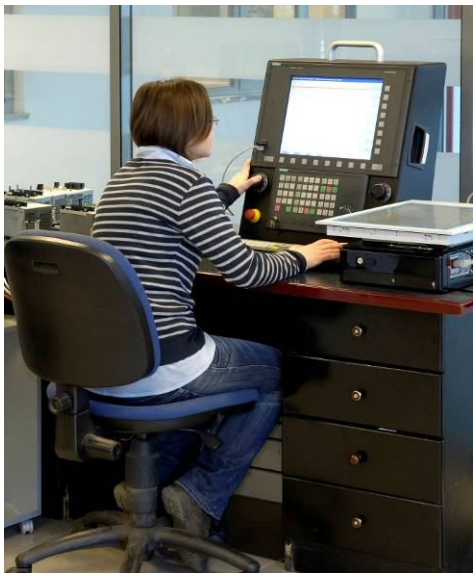
● Bottom rolls that located bottom side of top roll at two different axis obtain most ideal bending.

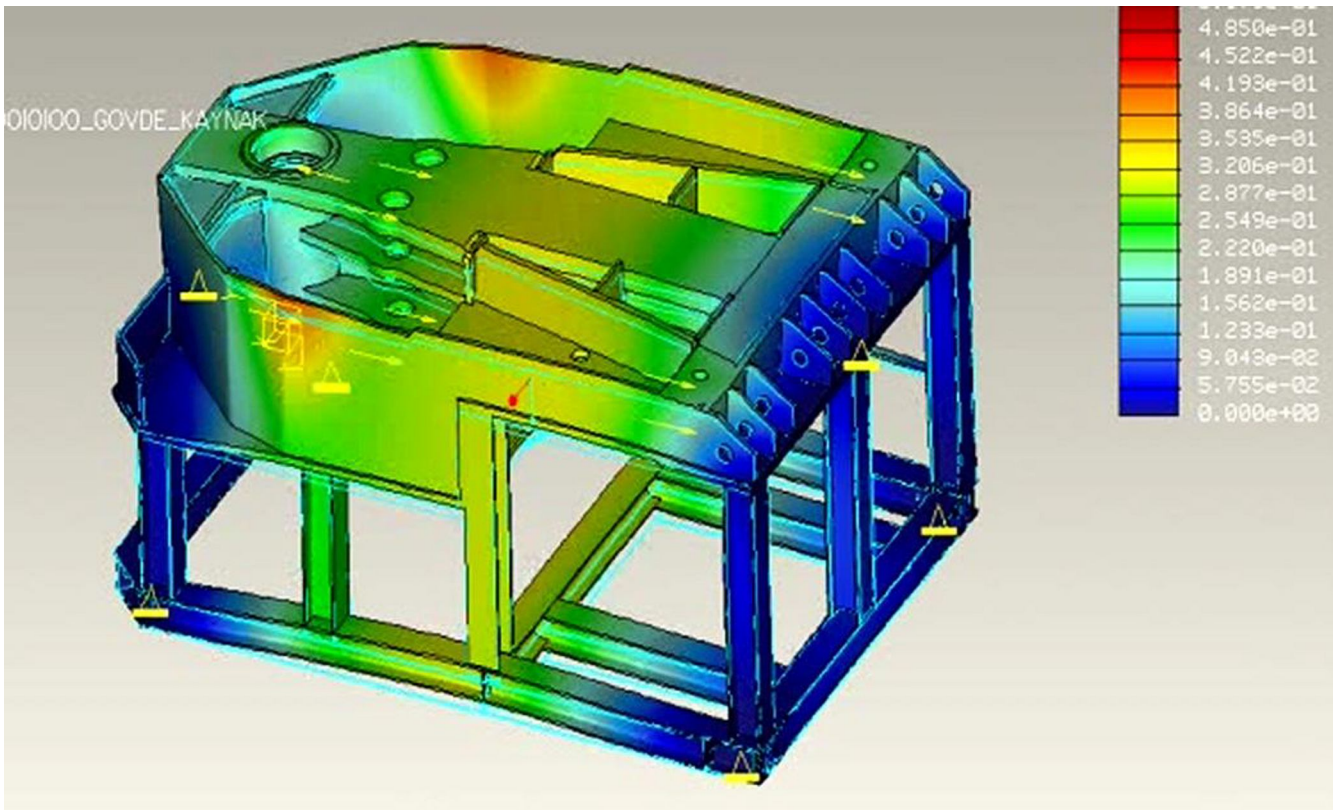
● Machine has capability to work horizontally and machine can be installed to the floor level because of working height.

● Briefly; with easy use of 3 roll profile bending machine, precise, fast, secure and more quantity bending achieved without any need of operator talent.

ENGINEERING AND PRODUCTION ADVANTAGE

The mechanical and hydraulic systems on PBH machines are designed by experienced Durma engineers. These engineers design the machines utilizing parametric 3D engineering technology (Pro/Engineer) as well as implementation of static and mechanism analysis.
All mechanical, hydraulic, and electronic systems are designed and tested by Durma electrical and mechanical engineers. Only following lengthy tests and evaluations are the machines authorized to be manufactured in serial production.





Stable and Robust Machine Body

The PBH machine body is strengthened and lowered to minimize twists and deformation of the profile. This robust body is joined by steel bars to the sturdy machine frame.
The machine body, frame and steel bar connections are all are stress relieved after the welding operation. The whole body is machined with 5-axis CNC machining centers utilizing a fixed single reference point. This allows for parallelism of all axes and precise surfaces, as well as longevity and precision of the critical characteristics of the machine.

Strengthen Guiding Systems

The shafts are less friction housing with sealed spherical roller bearings. These bearings requires less lubrication and assures longterm precision.

Durable Shaft and Rolls

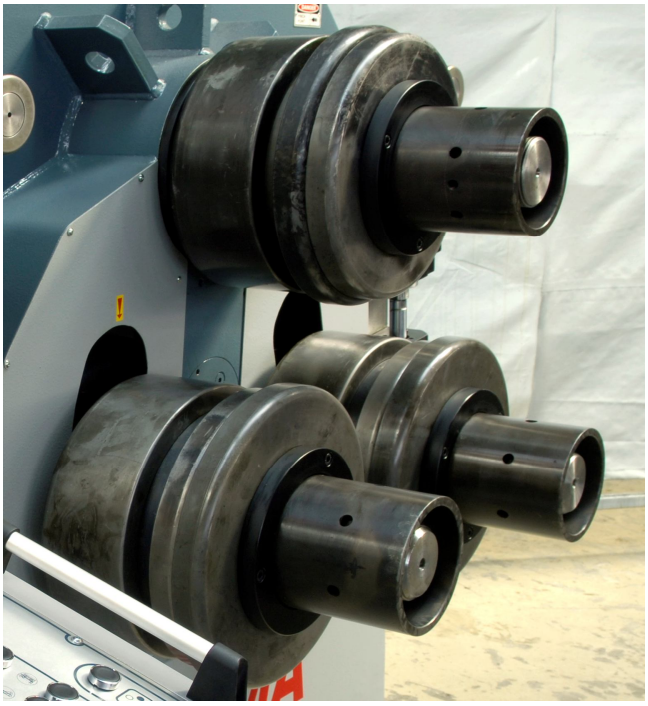
The most important element of a profile roll is the shafts themselves. Most machines in the market have weak shafts that deform during the bending process.

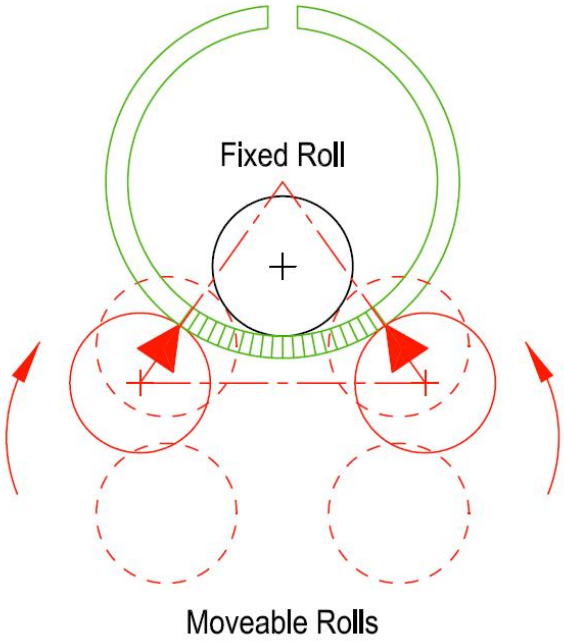
Durma uses highly tensile forged steel (42CRMO4, EN 10083-1 with ultrasonical testing acc. to SEP 1921-84, group 2 class C/c) shafts that are machined by high precision CNC lathes. Working surfaces of the shafts are CNC induction hardened to HRC 50-56 (4-5 mm deepness) and all rolls volume hardened to HRC 50-56. Hardness tests performed at varying points on the shafts and rolls.

Hardened Shafts

Ideal Roll Settlement

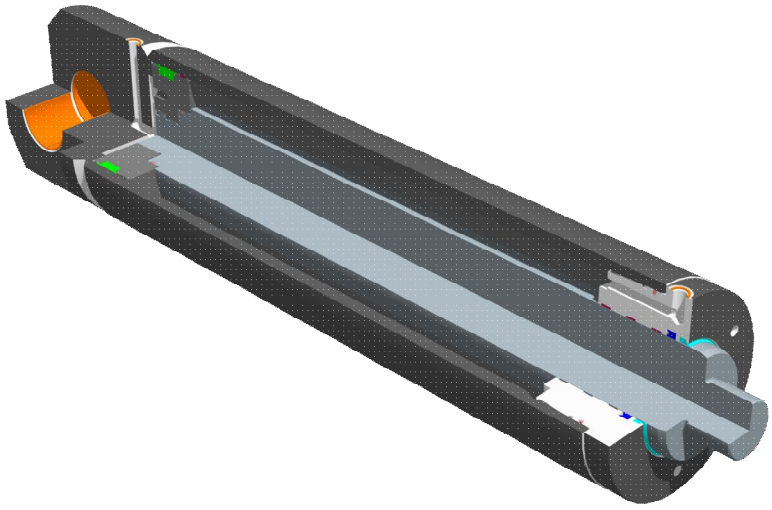
Ideal roll settlement has been achieved after long tests and calculations. Bottom rolls guided with Swing guides move as independent two axis on curve shaped orbit. Perfect bending achieved by bottom rolls outer inner approach to top roll. Profile spring back minimized.





Precise Roll Positioning System

Bottom rolls forces by two powerful hydraulic cylinders. They do not loose position by high precision load holding valves even at high pressure.



High Torque Roll Triggering

Because of its high torque, a Durma machine bends the part with fewer steps. All rolls driven by high torque hydraulic motor and planetary gear box (BONFIGLIOLI) and chain and planetary gears.

Renewed Side Support System

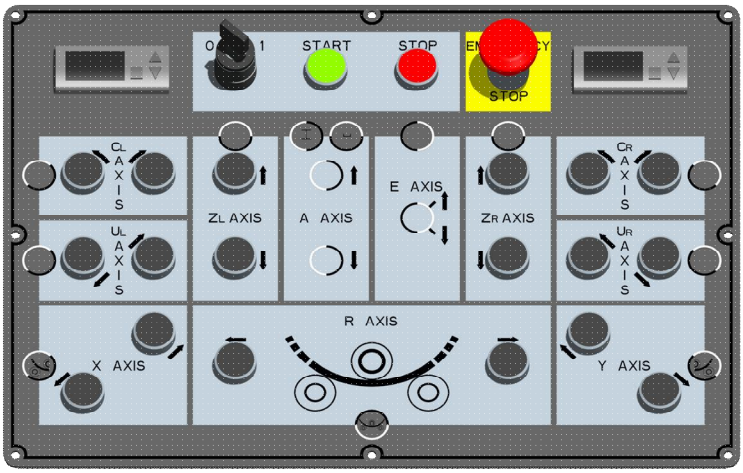
There is three axis motion side supports on both sides of the machine in order to prevent deformation of the bended profile. As standard Z, U and C axis has hydrolic control. All axises can be lubricated by hydrolic control. The sides support constantlyget perpendicular position to bended profile, which automatically allowease of use.Yield on side support, whose positions can be adjusted on main support shafts, has been eliminated by resisting loads, which are created during buckling, on same axis.

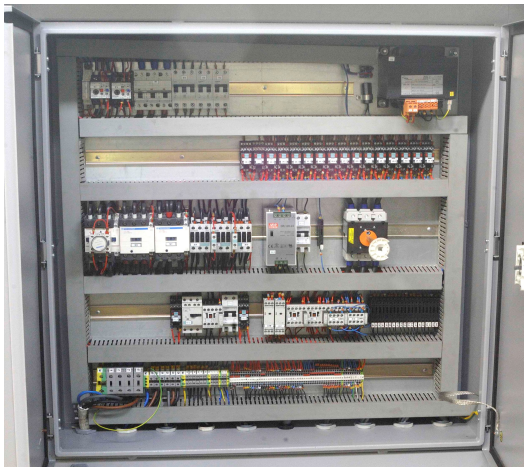
Hydraulic System

Machine all movement achieved with hydraulic driven. All axis precision is achieved by Rexroth valves.

Electronic and Control System

All electrical components and control panel equipment from Siemens and Schneider.





NC Control System (Optional)

NC control system, in addition to the PLC control system, has the property to work manual and automatic modes of operation. In manual mode, the use of all functions are provided by the operator. In teaching mode for the operator to twist all the steps are recorded respectively. In automatic mode all recorded movements are repeated, respectively by the machine. NC control system has the capacity to save 2500 programs consisting of Max 100-steps.

DURMA PBH NC Control System

NC Control Unit (S530)

Dedicated scratch-proof, oil-proof, acid-resistant IP65 sealed membrane push buttons with 51 keys
Fiberoptic communication lines.

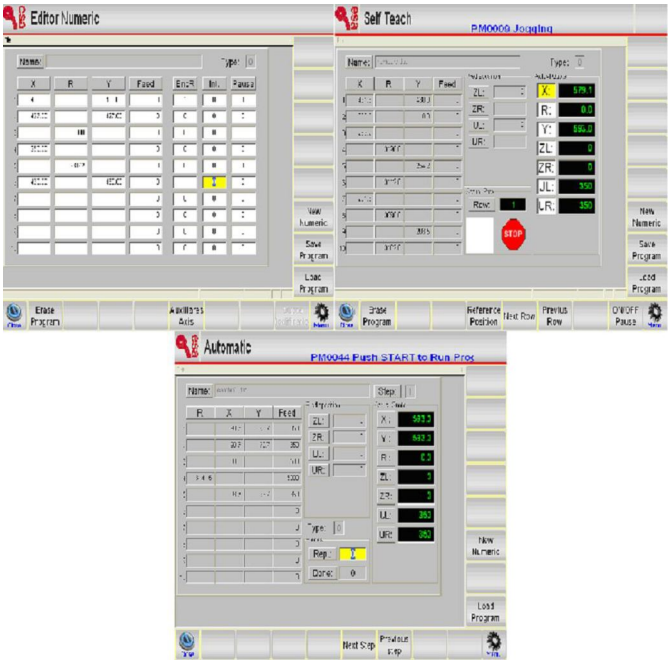
PLC
Esa/Gv

CPU
AMD Geode™ LX800 CPU 500MHz

Memory
256 Mbyte DRAM for CPU
1 Mbyte SRAM for parameters

Display
Color TFT-LCD 7” WVGA (16:9)
Resolution (800 x 480, (R.G.B)) 262,144 colors

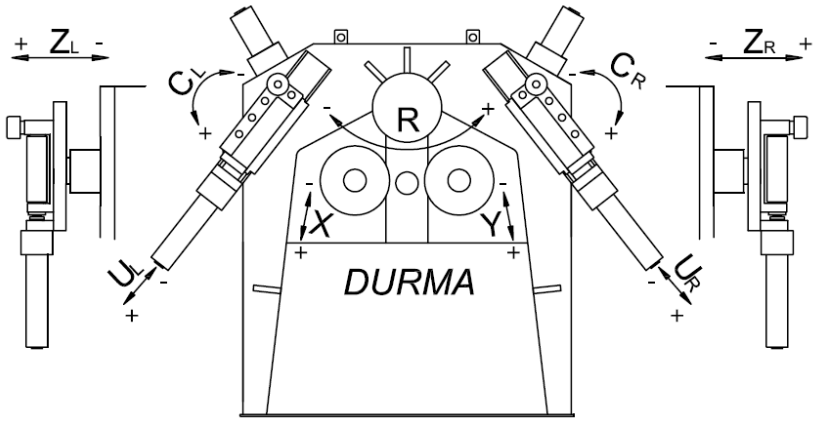
Communication ports 1 Ethernet Port
1 CAN interface
1 RS232C Serial Port
2 USB Port, 1 VGA Out



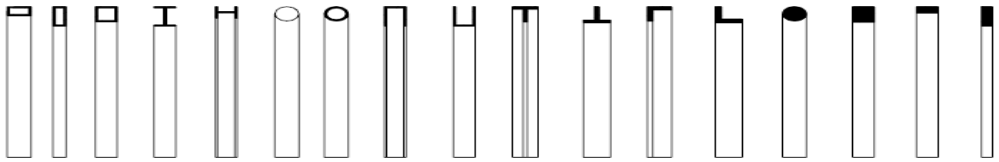
Temprature -25 / 70°C

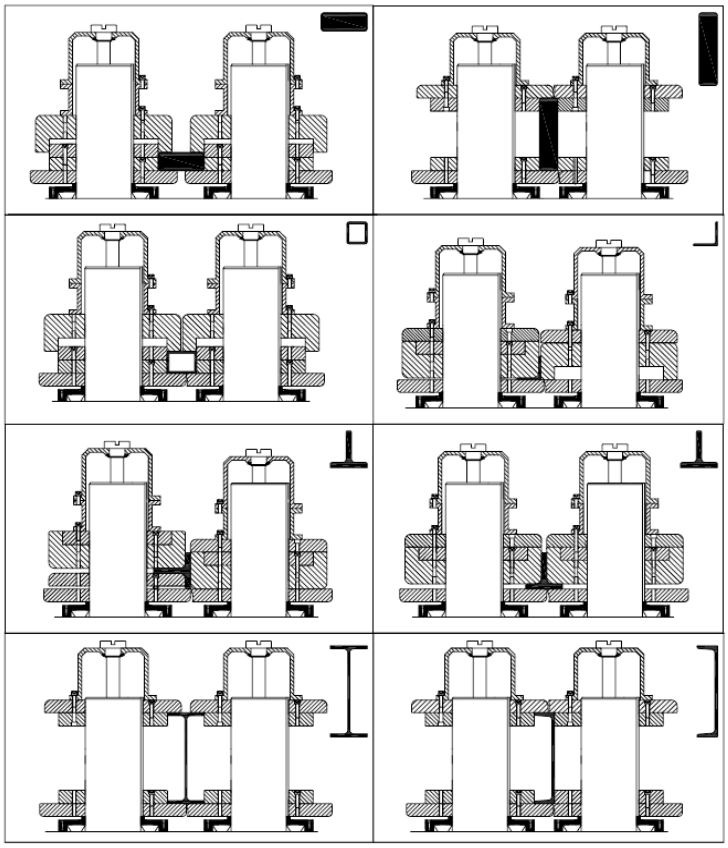
Software
Manuel, teach-in and automatic working modes,
Standard 3 axies (X,Y,R),
Adjustable speeds,
100 step, 2500 program memory,
User friendly program editor,
USB port for programs backup ,
Part pcs programing,
mm / inch system,
Turkish, English, German, French, Spanish, İtalian, Russian, languages.
Alarm list.

Axes on the machine

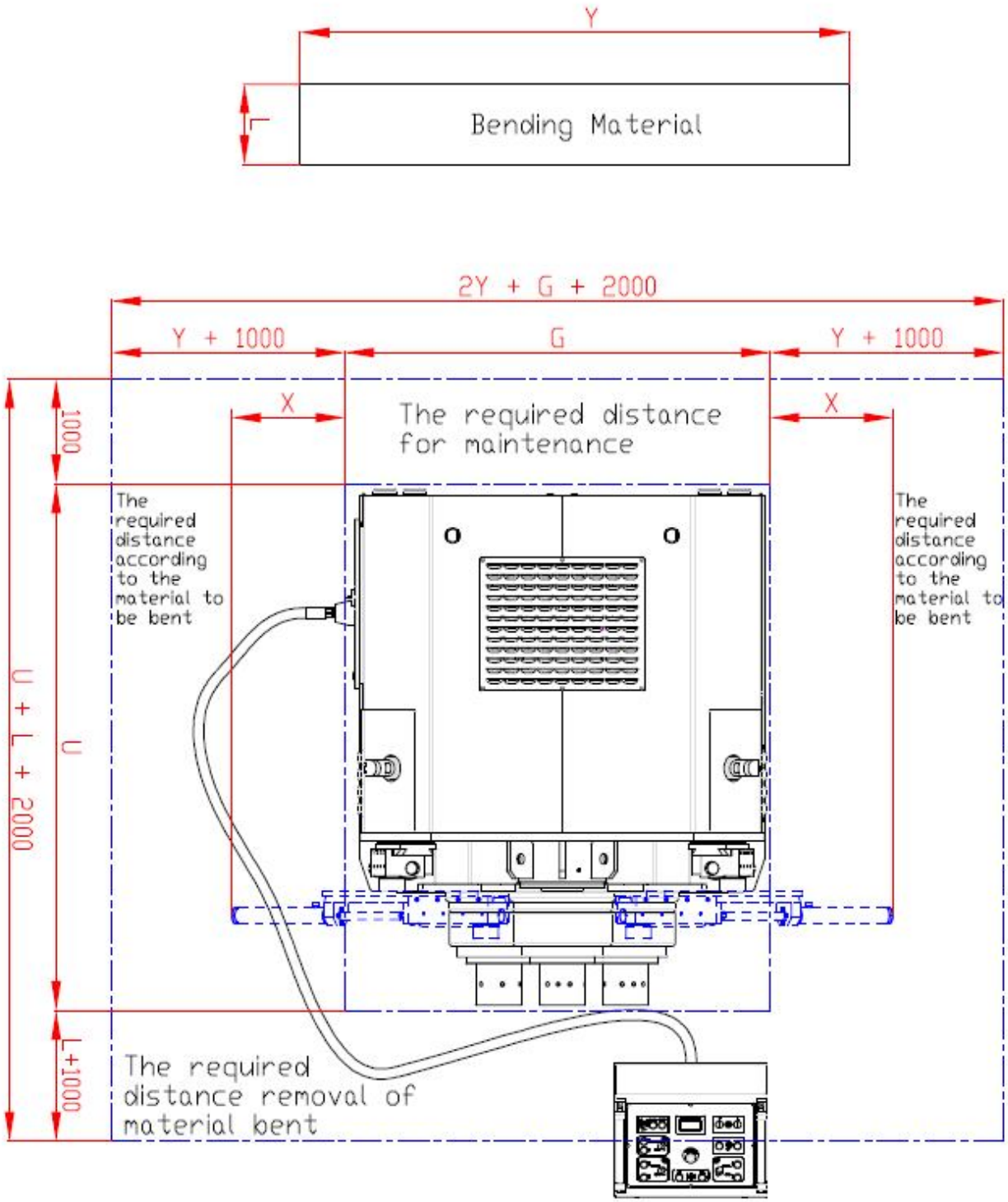


Example of standard rolls

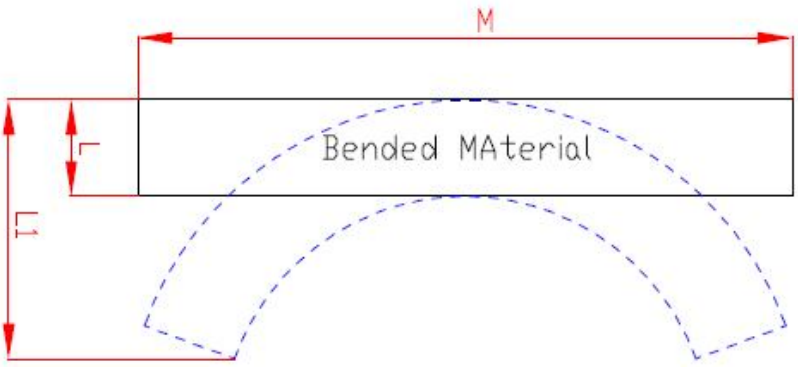


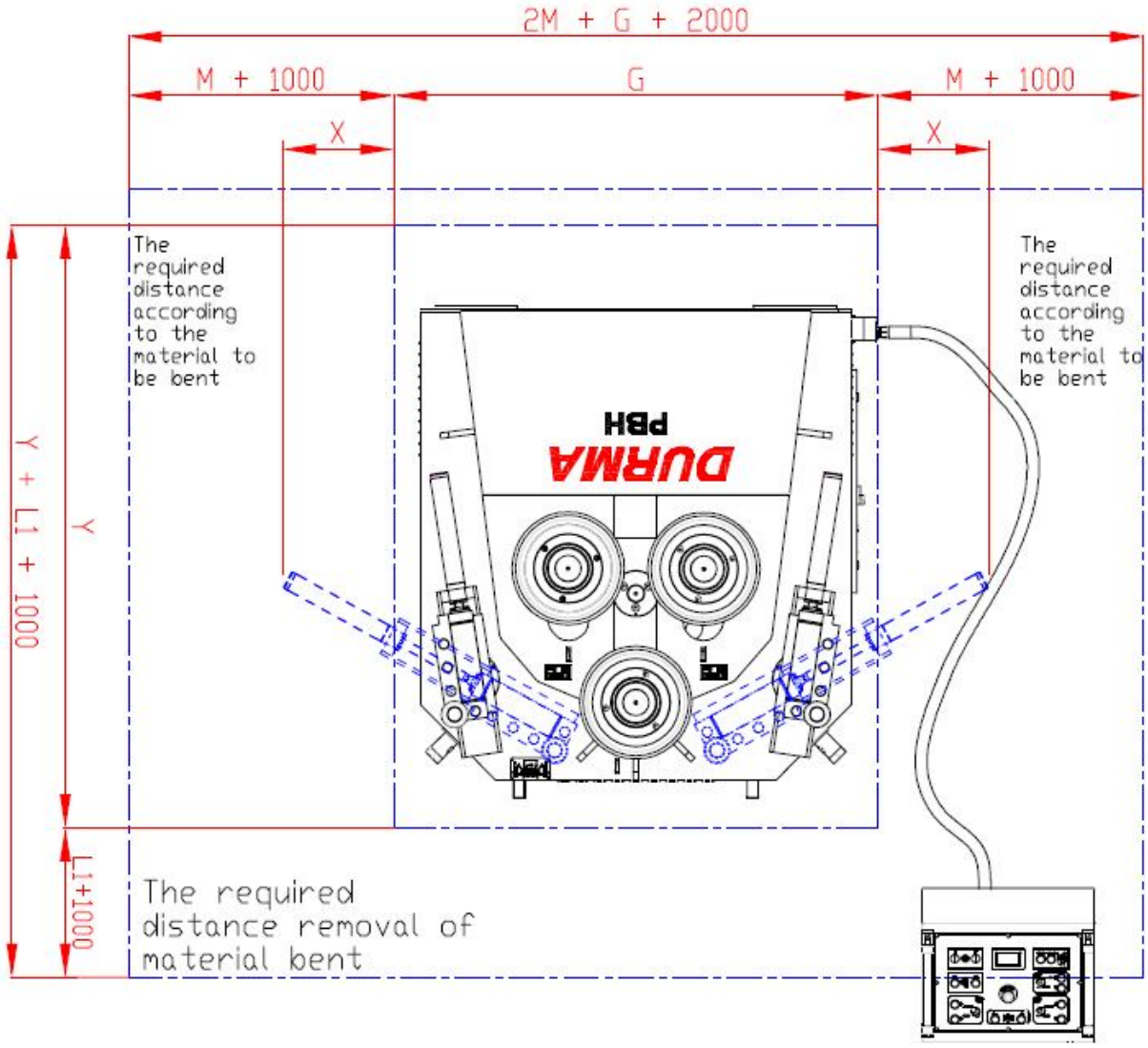


Required Workspace

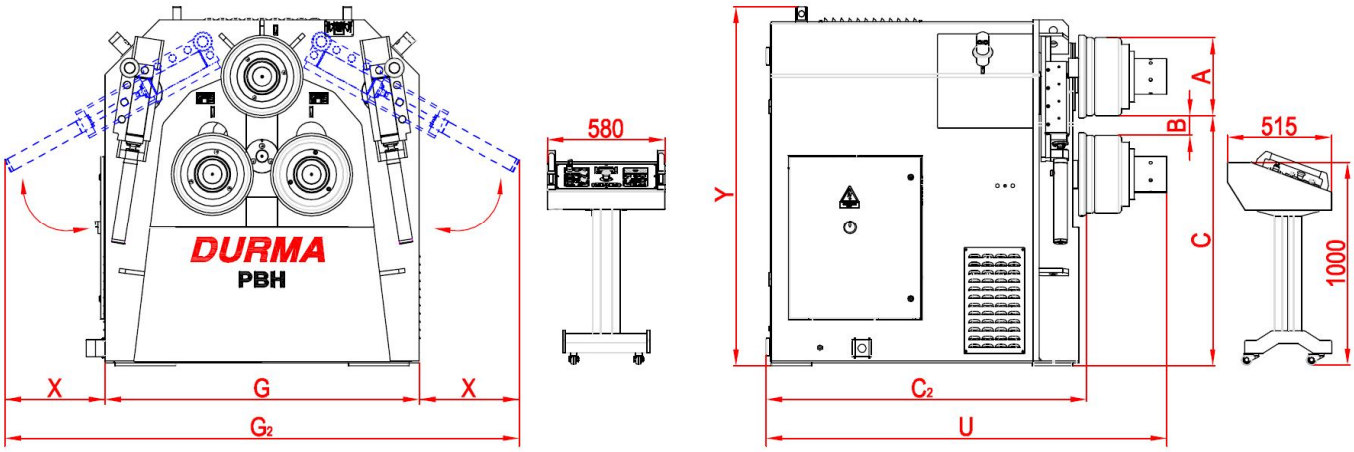


Required Workspace (Horizantal)





PBH 125 TECHNICAL DATA



Technical Characteristics			
Number of shafts	Pcs.		3
Shafts diameter	mm		Ø140- Ø120
Rolls diameter	mm (A)		Ø380
Max. pass trought	mm (B)		100
Rotation speed	m/min		8
Working height	mm	C	1235
		C2	1580
Length	mm	U	1975
Height	mm	Y	1770
Widht	mm	G	1550
		G2	2700
Weight approx.	Kg		4600
Motor power	kW		15
Supply voltage	V		400 (Or other)
Panel supply voltage	V		24 (Or other)
Frequency	Hz		50 (Or other)
Phases	~		3 (Or other)
Motor supply current	A		11,9
Isolation	MΩ		1
Supply cable section	mm²		4x6

** All technical specifications can be changed without notice.*

Standart Specifications

- Stress relieved steel canstuction body
- Standard hardened ang grounded roll set
- All rolls driven by gearbox and hydromotor
- 3 axis hydraulic side supports. (Z, U and C axis)
- Side supprots are suitable for angle iron bending
- Digital read-out for lower rolls movement
- Horizantal & Vertical working feature
- Portable control panel
- Electrical and hydraulic protection against overloads
- Compliance with CE norms

Optional Accessories

- Special rolls for pipe, profile, beams
- Special apparatus to prevent deformation
- * I and H beam bending
- * U profile bending
- Adjustable turning speed
- Digital read-out for side supports (Z Axis)
- NC Control system
- CNC Control system

KIVIRMA KAPASİTELERİ
CAPACITY CHART

durmazlar MAKİNA SANAYİ ve TİC. A.Ş

PBH 125

NO	PROFILE TYPE PROFILE TYP. PROFİL TİPİ	DIMENSIONS MASSE EBATLAR (mm)	MIN.INTER. DIA. MIN.Ø INT. EN KÜÇÜK ÇAP (Ømm)	NOTES NOTE NOTLAR
1		75x75 35x35	750 500	○
2		120x25 50x10	1300 500	○
3		200x40 100x10	1200 500	○
4		130x14 30x4	1300 500	○
5		120x13 30x4	1200 500	○
6		100x12 30x4	1200 500	○
7		120x12 50x5	1300 700	○ ●
8		100x10 50x5	1200 700	○ ●
9		100x100x6	(1)	○ ●
10		140x40x3	(1)	○ ●
11		Ø85 Ø40	850 500	●
12		Ø5"x5 Ø11/4"x3.2	1500 500	●
13		Ø140x3 Ø40x2	1500 500	●
14		UPN 220 UPN 40	1000 500	○ ●
15		UPN 220 UPN 40	1200 500	○ ●
16		UPN 100 UPN 50	8000 2000	● ▲
17		IPE 200 IPE 80	1000 500	○ ●
18		IPE 120 IPE 80	2500 1000	● ▲
19		HEA 140 HEB 120	1200 1300	○ ●
20		HEA 120 HEB 100	4000 3000	● ▲

○ Standard Rolls ● Special Rolls ▲ Apparatus

* All datas given according to 240 N/mm² yield point.
* (1) Can be changed according to deformation.