



# ANGLE ROLLS



HAR SERIES



Anerka was established in Bursa / Turkey in 2016 by Atakan Nerminer and Ramazan Kaba who has more than 20 years of experience in the design and production of roll bending and profile bending machines. We produce plate roll bending machines from 1mm to 100mm with 3 or 4 rolls and Hydraulic Angel Rolls / Profile bending machines with wide range. We export 70% of our production to the US market.

In today's market it is sometimes difficult to determine the quality of one brand of machine from another. On the outside they all look the relatively the same, but once you get under the "hood" that's where the differences make themselves apparent. ANERKA hydraulic angle roll machines are a perfect example of this. Each of our angle rolling machines incorporate an industrial grade hydraulic system to control the bottom forming rolls and the 4 or 6 axis lateral guide supports. This design lessens the operator's effort and time to set up jobs. More importantly the operator is able to easily repeat previous metal bending radius's. In addition to the hydraulic movement, there is also a digital readout to advise the operator as to the position of the bottom rolls location, which aids in repetitive bending. Our angle rolls have a powerful direct drive gearbox drive system that delivers full torque when bending at full capacity. Our angle rolls have an electrical and hydraulic overload protection to protect shafts and other components. The dual speed option allows the operator to fine tune different rolling speeds for each type of material. Our angle rolls can be operated in either the horizontal mode for larger rolling projects or vertical mode for smaller rolling projects.

ANERKA angle rolls also incorporate lateral guide rolls with three-dimensional adjustment, modular rolls that allow the bending of most profiles. Standard bending rolls are made of 4140 alloy steel, volume hardened to 56-60 HRC. All of the ANERKA angle rolls feature free standing mobile control stations to control the machine safely. Combine those advantages with our industry renowned service, our well-staffed emergency service line, and a parts department that will have what you need when you need it. If your initial investment includes tooling up your angle roll, ANERKA has you covered there as well. We have you covered no matter what you are trying to bend be it tube bending, profile bending, angle bending & so much more.

### **Can you really eliminate flat ends?**

Our machines generate high enough forces from the bending cylinders to minimize flat ends. Regardless of what anyone says, in the end, reducing the length of flat ends depends on raw bending force, and Anerka uses world-renowned manufacturing standards and unmatched competence to produce the most powerful machines with the highest roll power on the market.

### **We want to roll a special material with a customized shape, is it possible?**

Yes, with our standard range of models as a foundation, we design and produce custom-built and adapted angle rolls for specific customer needs. This can mean producing a machine with a unique roll diameter, special roll length or even a customized shape of the rolls. Request help with integrating the machine in your product line, demand special features and ask for what you think is impossible; we'll gladly prove you wrong!

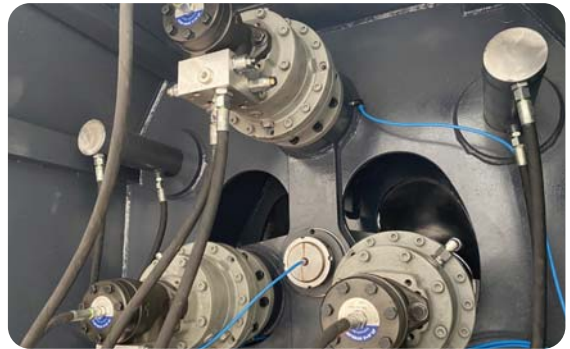


# BENEFITS OF ANERKA ANGLE ROLLS

ANERKA inventories and supports an extensive line of Profile Benders, Section Bending Machines, Universal Roll Benders, Angle Rolls as well as Tube Benders and Pipe Benders. We stock Standard Tooling, Custom Tooling and Parts, ready to ship. ANERKA Angle Rolls are used to bend all types of materials and profile shapes, handle mild steel, stainless steel, aluminum, titanium, bronze, brass, copper as well as other alloys. Our machines in the field are used to manufacture marine handrails, aluminum window frames, steel sections, ornamental and decorative iron, motorcycle frames and components, exhaust pipes, and more. Our machines handle flat bar, square bar, square & rectangular tube, round rod, channels, and T bar using standard tooling which is supplied with the machine. With optional tooling, ANERKA angle rolls will roll angle iron, round tube & pipe, oval tube, roll formed shapes, aluminum extrusions and special profiles.

ANERKA's service department employs factory trained experienced professionals to service your spare parts, repair and technical needs. We stock tooling and spare parts. Our CNC machine shop can build any custom tooling you need with a rapid turn-around. We manufacture tooling for other brands of Ring Rollers and Roll Bending Machines. For high volume roll bending or multi-radius parts, our optional CNC Angle Rolls with direct radius input let you roll up to the next level with the highest precision, repeatability and speed.

Our high quality OEM components are non-proprietary and available worldwide. Main frames carry a 10 year warranty! We are confident in ANERKA superior quality. Regardless of your need and budget for a roll bender, you will benefit from choosing ANERKA. Our true quality and integrity is in the "details" of every ANERKA roll bender. Compare and see for yourself why ANERKA Machines have become on of the most respected brand names in the roll bending industry. Come visit us to see our machines first hand and experience the ANERKA difference!"



**With many solutions available, we can configure any machine to exactly match your requirements.**

## HAR-110

Ø110 mm shaft diameters  
60 cm<sup>3</sup> Section Modulus Capacity  
Up to 4" SCH 40 (Ø114mm)  
Pipe Bending Capacity  
Up to 100mm Angle Bending Capacity  
11 Kw Main Motor Power



## HAR-140

Ø140 mm shaft diameters  
100 cm<sup>3</sup> Section Modulus Capacity  
Up to 5" SCH 40 (Ø141mm)  
Pipe Bending Capacity  
Up to 120mm Angle Bending Capacity  
15 Kw Main Motor Power



## HAR-190

Ø190/170 mm shaft diameters  
220 cm<sup>3</sup> Section Modulus Capacity  
Up to 6" SCH 40 (Ø168mm)  
Pipe Bending Capacity  
Up to 120mm Angle Bending Capacity  
22 Kw Main Motor Power



## HAR-240

Ø240/220 mm shaft diameters  
600 cm<sup>3</sup> Section Modulus Capacity  
Up to 8" SCH 40 (Ø219mm)  
Pipe Bending Capacity  
Up to 160mm Angle Bending Capacity  
37 Kw Main Motor Power



## HAR-300

Ø300/280 mm shaft diameters  
1600 cm<sup>3</sup> Section Modulus Capacity  
Up to 12" SCH 40 (Ø324mm)  
Pipe Bending Capacity  
Up to 200mm Angle Bending Capacity  
45+15 Kw Main Motor Power



## HAR-360

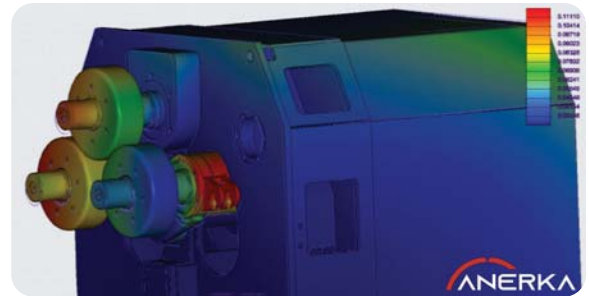
Ø360/340 mm shaft diameters  
6500cm<sup>3</sup> Section Modulus Capacity  
Up to 20" SCH 40 (Ø508mm)  
Pipe Bending Capacity  
Up to \*200mm Angle Bending Capacity  
55+22 Kw Main Motor Power



## PLANETARY MACHINE GEOMETRY

Our HAR series angle rolls and their positions are selected after long term engineering, tests and evaluation periods. Side rolls are guided by swing beds which allows them to act as 2 independent axes moving in planetary shape. Our system allows you to bend your workpiece as little as 1.1 times the top roll diameter of your machine. The side roll approach to the top roll allow you to get perfect pre-bends as well as minimizing spring back.

Rolls are guided with single spherical roller bearings. Guiding system requires less lubrication and maintains long term precision.



## MONOBLOCK ROBUST FRAMES

Monoblock welded frame is strengthened to minimize twists and deformation during bending. Thanks to our welded frame structure, it's not deflected during bending. In many machines in the market, the body loses its sensitivity over time, as it is bolt-connected, and this affects the rolling quality.

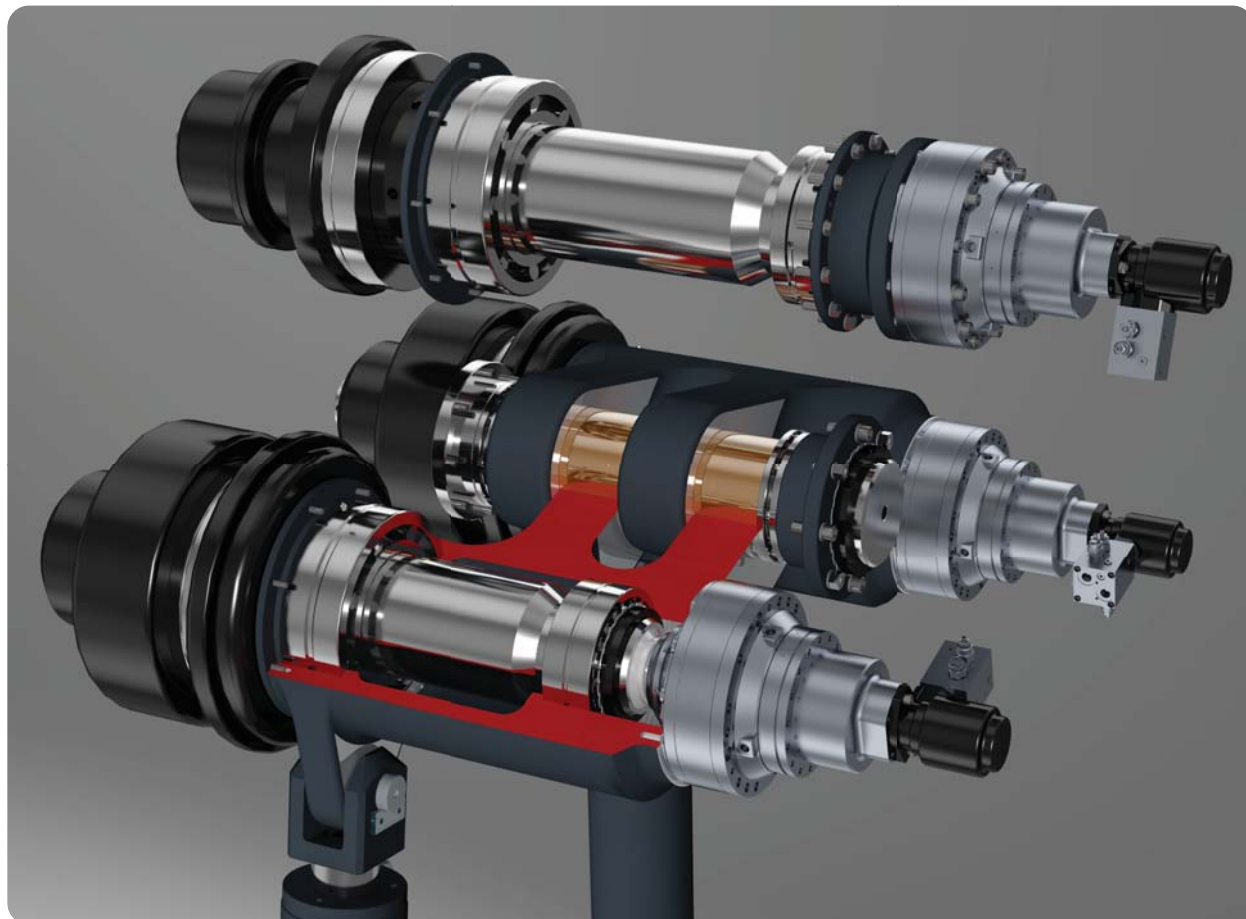
Our angle roll's frames are stress relieved after the welding. Stress relieving involves heating the weld and base material for a specific length of time at a recommended temperature schedule. All surfaces of the frame is machined using a 5 axes CNC machining center using a single reference. This way, we attain parallelism of all axes and all surfaces of the machine which contributes to the precision and longevity of all critical characteristics of the machine.



## HIGH TORQUE DRIVE SYSTEM

Using high torque, ANERKA machines bend the parts with less steps. Rolls are triggered by independent high torque hydraulic motors and planet gears. Trigger system is positioned on the same axis with roll and high torque is transferred to the part without any loss.

Strong Hydraulic Brakes : Especially during the pre-bending, system does not allow the part to slip back which may create safety problems.



## PULLING APPARATUS FOR I / H BEAMS AND U CHANNELS (OPTIONAL)

I, H beams with hard way bending operation, there will be some deformation on the flange and web. Specially U channels because of the asymmetric load there can be twist on their own axis.

We have a solution for this. Our hydraulic pulling apparatus eliminate possible deformations on these beams.

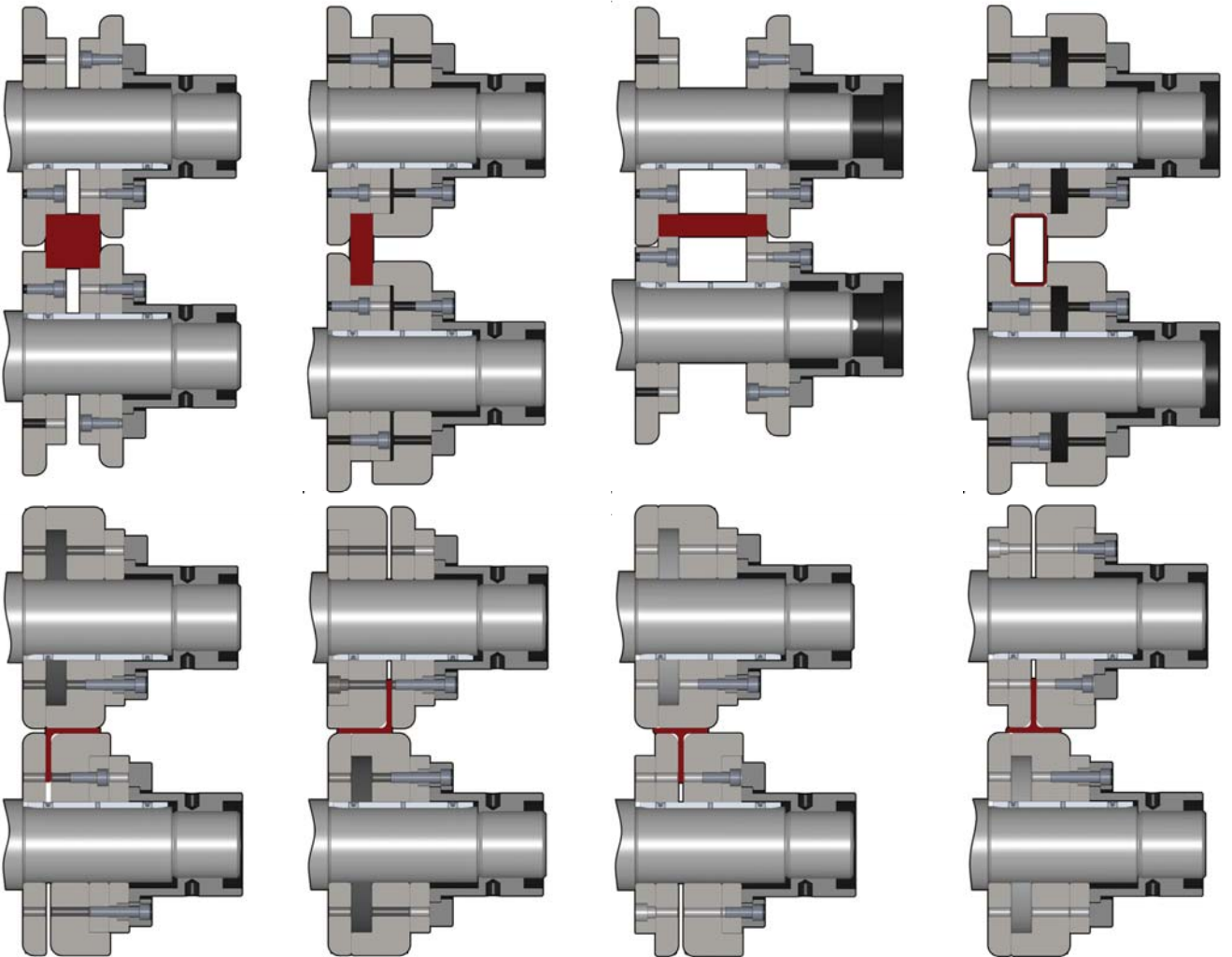


## SHAFT & DIES



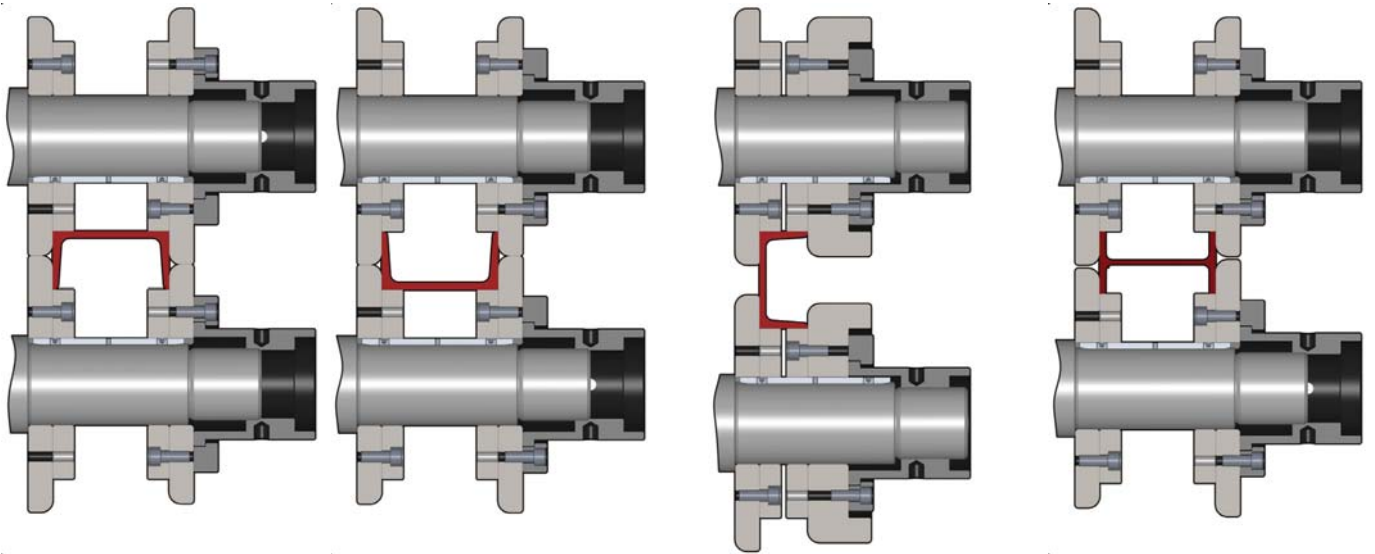
The most important element of an angle roll is the rolls themselves. Most machines in the market have weak dies that deform during the process when bending high yield materials. ANERKA uses high tensile forged steel rolls that are machined by high precision CNC lathes. All volume the rolls are hardened to HRC 56-60 with hardness tests performed at varying points on the dies. Die hole grind after hardening process with in tolerances.

## STANDARD ADJUSTABLE DIES

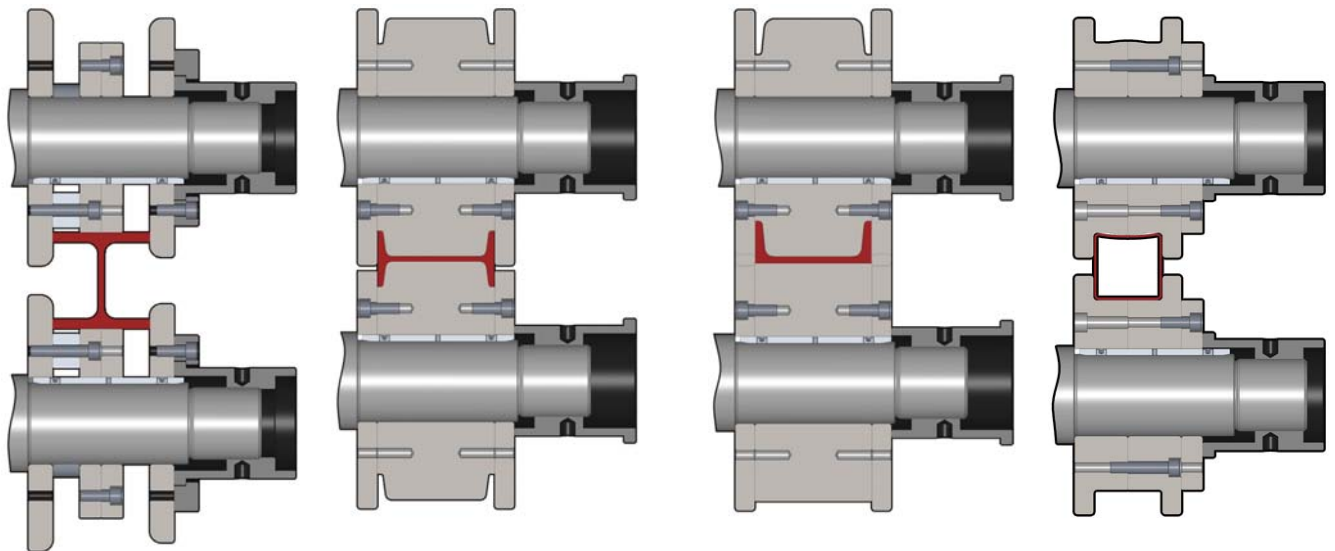


Bending rolls can be connected to nuts with the flanges. When you need a gap adjustment you can turn the nuts and dies can be move in-out. If necessary, rolls can also be connected to each other with the bolts. Thus, minimizes the die setting times before and after the rolling and all this features are standard on Anerka angle roll bending machines.

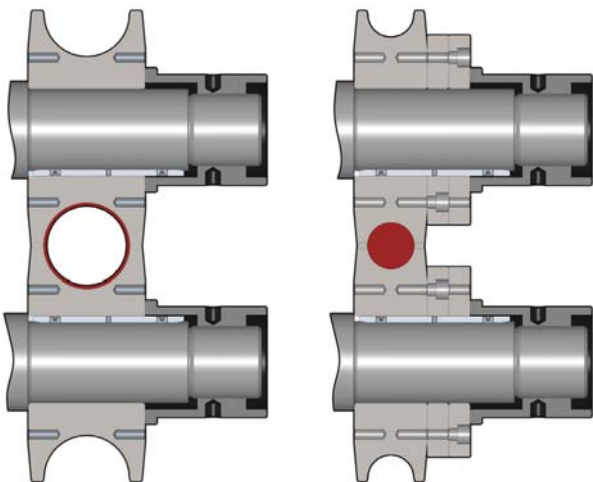




















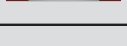


**CUSTOM DIES**



**PIPE&TUBE DIES**



Models		HAR-110	HAR-140	HAR 190
Shaft diameter (top / lower)	mm	110/110	140/140	190/170
Roll diameter (Larger / drive)	mm	Ø315 / Ø255	Ø390 / Ø310	Ø460 / Ø380
Free shaft length	mm	215	330	380
Max. Passthrough in drive rolls	mm	170	180	230
Motor Power	Kw	11	15	22
Rotation speed at 50Hz	RPM	2 - 10	1.4 - 7	1 - 4.6
Rated capacity	cm <sup>3</sup>	60	100	220
Max. capacity solid sections	cm <sup>3</sup>	50	85	135
Max capacity hollow sections	cm <sup>3</sup>	60	90	150
Max capacity beams X-X	cm <sup>3</sup>	N/A	100	220
Dimesions (LxWxH)	mm	1600x1650x1520	2050x1880x1700	2500x2000x1900
Weight	Kg	3200	4600	8100
Drive on all three rolls		Standard	Standard	Standard
Type of drive rolls		Hydraulic	Hydraulic	Hydraulic
Guide rolls adjustment		Hydraulic 6 axis	Hydraulic 6 axis	Hydraulic 4 axis with autocurve
Digital display for bending rolls		Standard	Standard	Standard
Digital display for guide rolls		Optional	Optional	Optional
Speed compensation top / lower rolls		Hydraulic	Hydraulic	Hydraulic
Working Position		Horizontal / Vertical	Horizontal / Vertical	Horizontal

Models		HAR-110	HAR-140	HAR 190				
NO	PROFILE TYPE	DIMS (mm)	MIN.ID (Ømm)	DIMS (mm)	MIN.ID (Ømm)	DIMS (mm)	MIN.ID (Ømm)	NOTES
1	 Solid - Square	65x65 (SM=45.7cm <sup>3</sup> )	750	80x80 (SM=85.3cm <sup>3</sup> )	1500	90x90 (SM=121.5cm <sup>3</sup> )	1000	○
2	 Flat-Hard way	100x30 (SM=50cm <sup>3</sup> )	800	130x30 (SM=84.5cm <sup>3</sup> )	1500	150x35 (SM=131.2cm <sup>3</sup> )	1100	○
3	 Flat-Easy way	200x35 (SM=40.8cm <sup>3</sup> )	500	250x40 (SM=66.6cm <sup>3</sup> )	1200	250x50 (SM=104.1cm <sup>3</sup> )	1200	○ ●
4	 T Section Leg-Down	120x12 (SM=29.1cm <sup>3</sup> )	1200	130x13 (SM=26.9cm <sup>3</sup> )	1300	150x15 (SM=56.7cm <sup>3</sup> )	1400	○ ●
5	 T Section Leg-Out	100x11 (SM=27.5cm <sup>3</sup> )	1000	120x12 (SM=43.6cm <sup>3</sup> )	1100	130x13 (SM=55.4cm <sup>3</sup> )	1300	○ ●
6	 T Section Leg-In	100x10 (SM=25.2cm <sup>3</sup> )	1300	100x11 (SM=27.5cm <sup>3</sup> )	1300	120x12 (SM=43.6cm <sup>3</sup> )	1600	○ ●
7	 Angle Leg-Out	100x12 (SM=29.1cm <sup>3</sup> )	1500	120x15 (SM=52.4cm <sup>3</sup> )	1400	120x15 (SM=52.4cm <sup>3</sup> )	1300	○ ●
8	 Angle Leg-In	100x10 (SM=24.6cm <sup>3</sup> )	1500	100x12 (SM=29.1cm <sup>3</sup> )	1400	120x12 (SM=42.7cm <sup>3</sup> )	1400	○ ●
9	 Tubing - Square	90x90x6 (SM=52.9cm <sup>3</sup> )	3500 ( 1 )	100x100x8 (SM=83.7cm <sup>3</sup> )	5000 ( 1 )	120x120x10 (SM=149.1cm <sup>3</sup> )	5000 ( 1 )	○ ●
10	 Tubing - Rectangle	120x50x6 (SM=53.5cm <sup>3</sup> )	3500 ( 1 )	120x60x10 (SM=88.4cm <sup>3</sup> )	5000 ( 1 )	160x80x8 (SM=142.2cm <sup>3</sup> )	5000 ( 1 )	○ ●
11	 Solid - Round	Ø75 (SM=41.4cm <sup>3</sup> )	800	Ø95 (SM=84.1cm <sup>3</sup> )	1500	Ø110 (SM=130.6cm <sup>3</sup> )	1100	○ ●
12	 Pipe SCH40	Ø4" (Ø114x6.1) (SM=53cm <sup>3</sup> )	1500	Ø5" (Ø141x6.6) (SM=89.5cm <sup>3</sup> )	1500	Ø6" (Ø168x7.1) (SM=138.5cm <sup>3</sup> )	2000	●
13	 C Section Leg-Out	UPN 180 (SM=22.4cm <sup>3</sup> )	800	UPN 220 (SM=33.6cm <sup>3</sup> )	800	UPN 320 (SM=89.3cm <sup>3</sup> )	1000	○ ●
14	 C Section Leg-In	UPN 180 (SM=22.4cm <sup>3</sup> )	800	UPN 220 (SM=33.6cm <sup>3</sup> )	800	UPN 320 (SM=89.3cm <sup>3</sup> )	1000	○ ●
15	 C Section Hard Way	UPN 100 (SM=41.2cm <sup>3</sup> )	5000 ( 1 )	UPN 140 (SM=86.4cm <sup>3</sup> )	10000 ( 1 )	UPN 180 (SM=150cm <sup>3</sup> )	10000 ( 1 )	● ▲
16	 I Section Easy Way	IPE 180 (SM=22.2cm <sup>3</sup> )	800	IPE 220 (SM=37.3cm <sup>3</sup> )	800	IPE 330 (SM=98.5cm <sup>3</sup> )	1100	○ ●
17	 I Section Hard Way	IPE 100 (SM=34.2cm <sup>3</sup> )	1600	IPE 140 (SM=77.3cm <sup>3</sup> )	3500	IPE 180 (SM=146cm <sup>3</sup> )	4000	● ▲
18	 H Section Easy Way	HEA 120 (SM=27cm <sup>3</sup> ) HEB 100 (SM=33cm <sup>3</sup> )	800 900	HEA 140 (SM=56cm <sup>3</sup> ) HEB 120 (SM=53cm <sup>3</sup> )	950 900	HEA 180 (SM=103cm <sup>3</sup> ) HEB 160 (SM=111cm <sup>3</sup> )	1100 1200	○ ●
19	 H Section Hard Way	Max. SM=60cm <sup>3</sup>	4000	HEA 120 (SM=106cm <sup>3</sup> ) HEB 100 (SM=90cm <sup>3</sup> )	4000 3400	HEA 160 (SM=220cm <sup>3</sup> ) HEB 140 (SM=216cm <sup>3</sup> )	5000 4900	● ▲

(1) Can be changed according to deformation.

















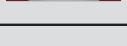


○ Standart Rolls

● Special Rolls

▲ Special Apparatus

All datas given according to 240 N/mm<sup>2</sup> yield point.

Models		HAR 240	HAR 300	HAR 360
Shaft diameter (top / lower)	mm	240/220	300/280	360/340
Roll diameter (Larger / drive)	mm	Ø560 / Ø450	Ø740 / Ø590	Ø800 / Ø640
Free shaft length	mm	450	670	1020
Max. Passthrough in drive rolls	mm	280	400	640
Motor Power	Kw	37	45+15	55+22
Rotation speed at 50Hz	RPM	0.8 - 3.5	0.7 - 3	0.6 - 2.7
Rated capacity	cm <sup>3</sup>	600	1600	6500
Max. capacity solid sections	cm <sup>3</sup>	400	800	2600
Max capacity hollow sections	cm <sup>3</sup>	500	1100	3000
Max capacity beams X-X	cm <sup>3</sup>	600	1600	6500
Dimesions (LxWxH)	mm	3200x2300x2000	3850x3050x2800	6000x5000x3500
Weight	Kg	16000	24000	45000
Drive on all three rolls		Standard	Standard	Standard
Type of drive rolls		Hydraulic	Hydraulic	Hydraulic
Guide rolls adjustment		Hydraulic 4 axis with autocurve	Hydraulic 4 axis with autocurve	Hydraulic 4 axis with autocurve
Digital display for bending rolls		Standard	Standard	Standard
Digital display for guide rolls		Optional	Optional	Optional
Speed compensation top / lower rolls		Hydraulic	Hydraulic	Hydraulic
Working Position		Horizontal	Horizontal	Horizontal

Models		HAR 240	HAR 300	HAR 360				
NO	PROFILE TYPE	DIMS (mm)	MIN.ID (Ømm)	DIMS (mm)	MIN.ID (Ømm)	DIMS (mm)	MIN.ID (Ømm)	NOTES
1	 Solid - Square	130x130 (SM=366.1cm <sup>3</sup> )	1500	160x160 (SM=682.6cm <sup>3</sup> )	2000	250x250 (SM=2604.1cm <sup>3</sup> )	3000	○
2	 Flat-Hard way	200x50 (SM=333.3cm <sup>3</sup> )	1400	260x60 (SM=676cm <sup>3</sup> )	1950	400x80 (SM=2133.3cm <sup>3</sup> )	2500	○
3	 Flat-Easy way	400x60 (SM=240cm <sup>3</sup> )	1100	450x80 (SM=480cm <sup>3</sup> )	1500	650x120 (SM=1560cm <sup>3</sup> )	2000	○ ●
4	 T Section Leg-Down	160x20 (SM=86.5cm <sup>3</sup> )	1500	200x20 (SM=134.5cm <sup>3</sup> )	2000	200x20 (SM=134.5cm <sup>3</sup> )	1600	○ ●
5	 T Section Leg-Out	160x20 (SM=126.3cm <sup>3</sup> )	1500	200x20 (SM=201.9cm <sup>3</sup> )	2000	200x20 (SM=201.9cm <sup>3</sup> )	1500	○ ●
6	 T Section Leg-In	150x20 (SM=110.2cm <sup>3</sup> )	2000	200x20 (SM=201.9cm <sup>3</sup> )	2800	200x20 (SM=201.9cm <sup>3</sup> )	2300	○ ●
7	 Angle Leg-Out	160x20 (SM=126.3cm <sup>3</sup> )	1600	200x24 (SM=235cm <sup>3</sup> )	2300	200x28 (SM=272.8cm <sup>3</sup> )	1800	○ ●
8	 Angle Leg-In	150x18 (SM=100.4cm <sup>3</sup> )	1600	200x20 (SM=199cm <sup>3</sup> )	2300	200x28 (SM=272.8cm <sup>3</sup> )	2100	○ ●
9	 Tubing - Square	180x180x12 (SM=423.6cm <sup>3</sup> )	10000 ( 1 )	200x200x16 (SM=669.5cm <sup>3</sup> )	10000 ( 1 )	400x400x16 (SM=3025.1cm <sup>3</sup> )	30000 ( 1 )	○ ●
10	 Tubing - Rectangle	250x150x10 (SM=508cm <sup>3</sup> )	10000 ( 1 )	300x200x12 (SM=944.2cm <sup>3</sup> )	16000 ( 1 )	500x300x12.5 (SM=2675.9cm <sup>3</sup> )	30000 ( 1 )	○ ●
11	 Solid - Round	Ø150 (SM=331.3cm <sup>3</sup> )	1600	Ø180 (SM=572.5cm <sup>3</sup> )	1800	Ø280 (SM=2155.1cm <sup>3</sup> )	2500	○ ●
12	 Pipe SCH40	Ø8" (Ø219x8.1) (SM=272.9cm <sup>3</sup> )	2700	Ø12" (Ø324x10.4) (SM=778.3cm <sup>3</sup> )	5000	Ø20" (Ø508x15) (SM=2781.3cm <sup>3</sup> )	40000	●
13	 C Section Leg-Out	UPN 400 (SM=110.6cm <sup>3</sup> )	2000	UPN 400 (SM=110.6cm <sup>3</sup> )	2000	UPN 400 (SM=110.6cm <sup>3</sup> )	2000	○ ●
14	 C Section Leg-In	UPN 400 (SM=110.6cm <sup>3</sup> )	2000	UPN 400 (SM=110.6cm <sup>3</sup> )	2000	UPN 400 (SM=110.6cm <sup>3</sup> )	2000	○ ●
15	 C Section Hard Way	UPN 240 (SM=300cm <sup>3</sup> )	12000 ( 1 )	UPN 300 (SM=535cm <sup>3</sup> )	12000 ( 1 )	UNP 400 (SM=1115.1cm <sup>3</sup> )	20000 ( 1 )	● ▲
16	 I Section Easy Way	IPE 450 (SM=176cm <sup>3</sup> )	1200	IPE 600 (SM=308cm <sup>3</sup> )	2000	IPE 600 (SM=308cm <sup>3</sup> )	1500	○ ●
17	 I Section Hard Way	IPE 240 (SM=324cm <sup>3</sup> )	10000	IPE 360 (SM=904cm <sup>3</sup> )	20000	IPE 600 (SM=3070cm <sup>3</sup> )	30000	● ▲
18	 H Section Easy Way	HEA 280 (SM=340cm <sup>3</sup> ) HEB 240 (SM=327cm <sup>3</sup> )	1600 1500	HEA 600 (SM=751cm <sup>3</sup> ) HEB 400 (SM=721cm <sup>3</sup> )	4000 3900	HEA 1000 (SM=934cm <sup>3</sup> ) HEB 1000 (SM=1090cm <sup>3</sup> )	4000 5000	○ ●
19	 H Section Hard Way	HEA 220 (SM=515cm <sup>3</sup> ) HEB 200 (SM=570cm <sup>3</sup> )	8000 8900	HEA 300 (SM=1260cm <sup>3</sup> ) HEB 280 (SM=1380cm <sup>3</sup> )	20000 22000	HEA 600 (SM=4790cm <sup>3</sup> ) HEB 600 (SM=5700cm <sup>3</sup> )	42000 50000	● ▲

(1) Can be changed according to deformation.

○ Standart Rolls

● Special Rolls

▲ Special Apparatus

All datas given according to 240 N/mm<sup>2</sup> yield point.

# CONTROL UNITS FOR YOUR REQUIREMENT

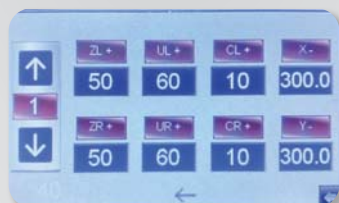
## DRO (STANDARD)

The Digital Read Out system ensures the positions of the bottom rollers of the HAR series machines. This system process is provided by linear encoder up to 2 axes.



## PLC (OPTIONAL)

The PLC Electronic control system shows the position the of the bottom rollers and side supports. This process is provided by PLC and touch operator panel which controls up to 8 axes. In addition, ease of use and time saving are provided by the ability to program up to 5 set points of the previously experienced bending values.



### PLC Control Unit

- Dedicated scratch-proof, oil-proof, acid-resistant IP65 sealed touch panel
- PLC
- Panasonic 32 I/O
- Memory 5 Mbyte
- Display
- Color LCD 4" touch screen
- Resolution 128 (W) x 64 (H)
- Communication port 1 RS232C Serial Port
- Temperature -20 / 60°C

### Software

- Manual working mod,
- Control up to 8 axes (X,Y,ZL,ZR,UL,UR,CL,CR),
- 5 set point programing,
- Touch panel
- Remote connection via WiFi ,
- Profile rolling information pages
- Turkish,English, German, French, Spanish, Polish, Hungarian, Croation languages.
- Alarm list.

## NC CONTROL (OPTIONAL)



NC control system, in addition to the PLC control system, has the property to work manual, teach-in 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 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 500MHz

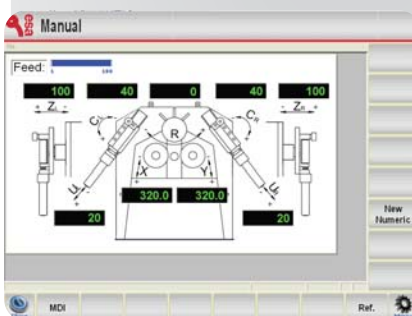
Memory  
256 Mbyte DRAM for CPU  
1 Mbyte SRAM for parameters

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

Temperature -25 / 70°C

Software  
Manual, teach-in and automatic working modes,  
Standard Control 3 axes (X,Y,R),  
Control Up to 8 axes (X,Y,R,ZL,ZR,UL,UR,CL,CR),  
Dual speed,  
100 step, 2500 program memory,  
User friendly program editor,  
USB port for programs backup ,  
Parts quantity programing,  
Working hours counter,  
Metric and imperial units,  
Automatic turn off programing,  
Turkish, English, German, French, Spanish, Italian,  
Russian, Polish, languages.  
Alarm list.



## CNC CONTROL (OPTIONAL)



The CNC unit, with its graphical control system allows the bending to be done step by step or by automatically calculating the bending steps. Due to changes in the structure of the material, corrections must be entered for pre-bending and bending steps after the first bended profile to get the desired bending form. Correction coefficients can be recorded to software for using them in similar characteristic material bending operations. With the CNC control you can easily bend parts into shapes such as: cylindrical, rectangle, oval, elliptical, half rectangle, spring, and open arcs. CNC unit has interpolation capability due to proportional valves. The CNC unit can store more than 2,000,000 programs. The easy to use editor page also allows for simple editing of any saved programs. The CNC unit also comes with a USB port allowing for easy upload or download of your programs.

## CNC Unit (S550 PC)

Standard 32 inputs and 32 outputs  
 15" TFT XGA color touch display with antiglare screen  
 Dedicated scratchproof, oil-proof IP65 keyboard with 28 keys  
 2.5" Hard disk drive 20GBytes or more  
 Hand wheel for adjustable turning speed  
 Industrial keyboard (USB)

### Technology:

CPU PC: Intel Atom N270 1,6Ghz with 1Gb of RAM  
 CPU CNC: AMD Geode ETX-LX800 500 Mhz, with 128Mb

### Communication ports:

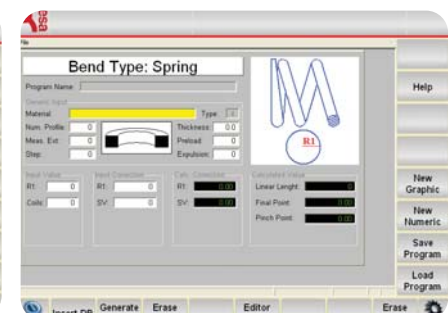
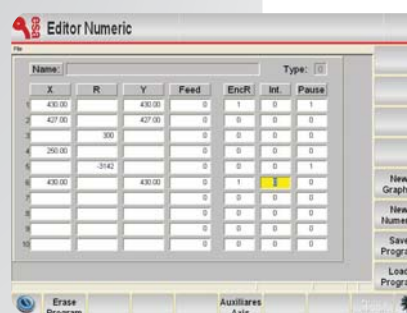
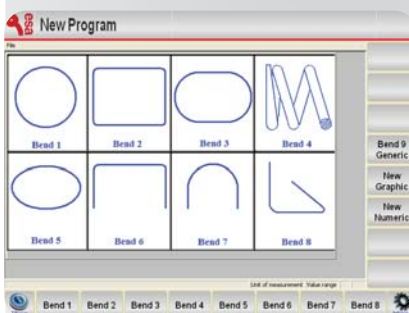
1 serial ports RS-232, 3 USB ports,  
 2 Ethernet port on the PC  
 2 serial ports RS-232, 2 USB, 1 Ethernet port,  
 1 Can Open Port on CNC  
 Fiber optic interface  
 Local area network

### User memory:

Hard disk for more than 2.000.000 programs,

### Software specifications:

Windows® 10 operating system  
 Internet via Wifi  
 Manual, teach-in and automatic working modes,  
 Standard Control 3 axes (X,Y,R),  
 Control Up to 8 axes (X,Y,ZL,ZR,UL,UR,CL,CR)  
 Interactive 2D graphic editor for work-pieces and tools data entry ,  
 2D graphic display of machine rolls,  
 2D automatic identification of the best bending sequence ,  
 Programming of the axes positions in tabular mode with automatic syntactical checks,  
 Material database of common steel profiles,  
 X-R / Y-R (Side Roll & Rotation) axes interpolation capability  
 Parts quantity programing, Working hours counter,  
 Horizontal or Vertical program calculations,  
 Metric and imperial units,  
 Offline programming  
 Turkish, English, German, French, Spanish, Italian, Russian, Polish, languages.  
 Alarm messages



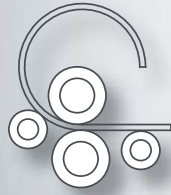


## STANDARD

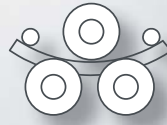
- Planetary type double pinch design allowing prebending in both directions.
- Digital read-out for X,Y axis
- Dual speed on rolls rotation
- Normalized and induction hardened 4140 shafts (HRc 58±3)
- Volume hardened 4140 rolls (HRc 58±3)
- Polished rolls
- Hydraulic side supports on HAR-110 - 140 (UL,UR,ZL,ZR,CL,CR)
- Hydraulic side supports with autocurve on HAR-190-240-300-360 (UL,UR,ZL,ZR)
- Machine body constructed of stress-relieved
- Rolls seated in spherical bearings
- Three-roll drive to minimize the slipping.
- Automatic rolls peripheral speed compensation (optimum distribution of torque)
- Electrical and hydraulic protection against overloads
- World standard electrical and hydraulic components
- Mobile control panel
- Gathered together manual lubrication.

## OPTIONAL

- PLC control for up to 8 axis (X,Y,R,ZL,ZR,UL,UR,CL,CR)
- NC Control
  - \*3 axes (X,Y,R)
  - \*5 axes (X,Y,R,ZL,ZR)
  - \*9 axes (X,Y,R,ZL,ZR,UL,UR,CL,CR)
- CNC Control with the teachable side supports
  - \*3 axes (X,Y,R)
  - \*5 axes (X,Y,R,ZL,ZR)
  - \*9 axes (X,Y,R,ZL,ZR,UL,UR,CL,CR)
- Special dies for pipes, tubes, beams.
- Channel type dies for heavy beams and channels for rolling easy way.
- Customized dies for almost any bendable section or extrusion.
- Special apparatus to prevent deformation
  - \* I and H beam bending
  - \* U profile bending
  - \* Spiral bending device
- Material output table
- Overhead support for spirial bending
- Higher rotation speeds with full drive torque throughout the speed range.
- Extended roll shafts to accommodate tooling for wider sections.
- Adjustable turning speed (Standard on CNC control)
- Automatic lubrication
- Oil cooler



*Plate Rolls*



*Angle Rolls*

*"If you need a machine and don't buy it, you'll find that you have paid for it anyway, but don't have it."  
Henry Ford*



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