



### Company History

- Established in 1981, our design and engineering team serves a broad industrial spectrum, including: automotive, motorcycle, marine, heating and air conditioning, medical, furniture, and bicycle markets.
- 1999 Introduction of CNC tube bending machinery to USA market
- 2000 First electric hybrid tube bender introduced
- 2003 First double stack electric hybrid tube bender introduced, equipped with planetary bend head with bending & rolling capability
- 2004 First electric-driven high torque rear booster (RBE) introduced
- 2005 All electric CNC Bender (12 axis) introduced
- 2007 All electric model capable to bend from Left and Right (14 axis) introduced
- 2009 Alpine Bender establishes its service centers and dealers across the USA
- 2011 Alpine Bender increases global distribution in North America, South America, Europe and Asia
- 2012 Alpine Bender offers complete automation bending cell and bender software intergrades with uncoil system, straightening device, autoloader, robot and portable CMM
- 2014 Automatic work cell with integration of robotic loading and customized drop off system
- 2017 Alpine introduces M5 (5th generation) control software with real time motion modification
- 2019 Alpine introduces upgrade version of B5 (Beckhoff PLC) control system
- 2021 Alpine introduced optical fiber tube laser cutting system

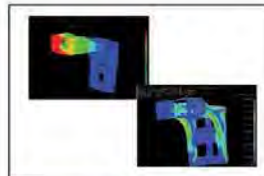
Alpine Bender continually strives to excel in offering the latest innovations in tube bending machines with excellent quality, while fulfilling the service, parts, and technical needs of our customers throughout the United States, Mexico, and Canada.



◆ **Quality** - State of art OEM facility

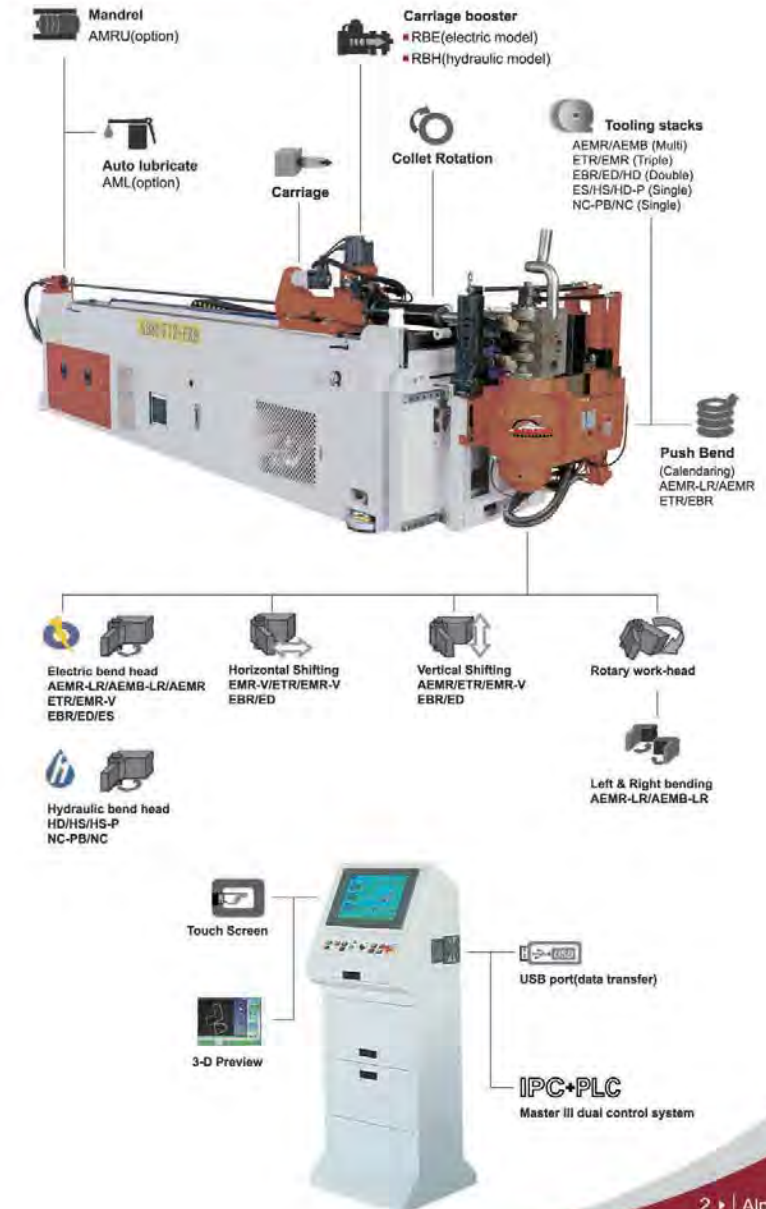


◆ **Service** - Racks of spare parts



◆ **Innovation** - Advanced R&D tool

### Machine cross reference





## 1 Front Chuck Chuck

- Exclusively-designed, international patent
- Servo Drive Rotation
- Coupling design with high-powered clamping fueled by four pneumatic cylinders.
- Dustproof cover
- Optimized for circular, rectangular, square, elliptical, or obround tubes.



## 3 Laser Head

- Enhanced automatic depth calibration
- Servo drive plain and upright motion with speeds up to 26.247 in/sec.
- Positioning repeatability of  $\pm 1.18 \times 10^{-3}$  inches.
- Authentic craftsmanship allows for precise, definitive cutting of most tube shapes.

## 4 Dropoff Device

- Innovative, versatile design includes pneumatic and/or 3D servo support systems to stabilize tubes of various OD, shape, and length.



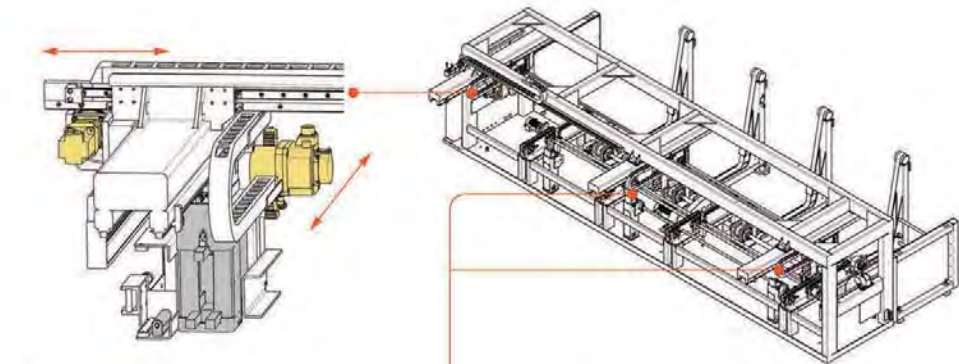
## 6 Safety barrier

- Automatic enclosure of the moving y-axis carriage protects operators from harm.



## 2 Rear Chuck

- Exclusively-designed, international patent
- Quick and precise servo drive feeding and rotation
- Coupling design with high-powered clamping fueled by four pneumatic cylinders. Capable of automatic aligning and centering.
- Compact size and weight.
- Rear chuck fits within the front chuck, minimizing material waste.
- Optimized for circular, rectangular, square, elliptical, or obround tubes.



## 5 Loader

- Exclusively-designed, international patent adaptations to fit most tube specifications
- Twin servo motors mitigate rapid customization to fit most tube specifications.
- Capable of synchronized loading, thus accelerating production speed
- Safeguards from tube defects, especially flexing





### CNC Tube Bender and Tube Laser

Being involved in tube forming technologies for decades, Alpine Bender has been dedicated to various developments in the world of tube forming to meet global demands across industries. Alpine offers full line of premium mandrel tube/pipe benders at its highest values and with competitive pricing. Whether for low volume use or mass production runs, Alpine CNC benders can fulfill your manufacturing needs and meet your application solutions. The "Environmental Friendly" All electric servo driven benders produce superior quality and excellent precision of the most demanding tubular part shape. It is by far the most efficient machine in its class to minimize energy consumption. In comparison, our popular Electric hybrid model maintains the same high levels of accuracy and repeatability while keeping your capital investment within your budget. Furthermore the Alpine conventional CNC or NC Hydraulic benders provide optimum robustness in strength and torque for rigid tube and pipe bending challenges.

Alpine CNC and NC operated machines aim to provide uncompromised consistency and accuracy from complex bending configurations to end forming.

Our complete line of equipment consist of the following models:

- LS -Series (Fiber Laser),
- AE -Series (All Electronic),
- E -Series (Electric hybrid),
- H -Series (Hydraulic),
- NC -Series (Two and single axis hydraulic),
- T -Series (Twin head bender) and
- EF/ER-series (Multi hit end form machine).

We provide robust and versatile machines that can quickly adapt to a variety of production changes. Aside from reducing labor, our contemporary machines are made to be dependable and serviceable. Each machine is designed to integrate quick tool changing features and rapid parts replacement to minimize machine down-time during production.



We are dedicated to safety and dependability and proper maintenance of equipment which is important to the longevity of your investment. Alpine trained technicians will also assist you in fulfilling your maintenance obligations to help preserve your overall value and performance of your equipment. Alpine will also deliver timely reminders prior to your scheduled maintenance checks



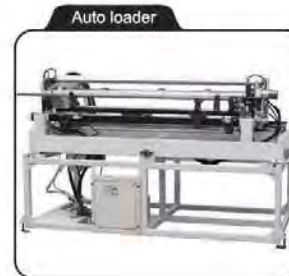
#### Alpine featuring:

- OEM by world class manufacturing facility with annual production of over 500 CNC units per year. By far the highest volume manufacturer of related CNC tube bending equipment in the world.
- Manufactured more than 10,000 units since 1985 for worldwide consumption.
- All electrical components meet CE standard and easily sourced in USA.
- Pneumatic and hydraulic components with NFPA fittings for easy cross referencing with major brands.
- Wide range of Model selections and machine capacity (up to 10" OD)
- Worldwide patented advance bender technology
- Newly develop user friendly multi-purpose Beckhoff 5 Controller
- Fully supported by Alpine Authorized distributors for installation, training, and service
- Thorough machine evaluation and consulting available per customer application





## Alpine Automation



## LS 150



### Features

- Laser Source:  
IPG Photonics continuous wave (CW) fiber laser  
Alpine offers output levels of 1 kW, 2 kW or 3 kW
- Laser Cutting Head Selection:  
Precitec - LightCutter 2.0  
Raytools - BM111 Auto-Focusing
- Control Software:  
CypCut – TubePro laser cutting control system  
integrates CAD, Nest and CAM modules in one
- Motion Control:  
4-Axis Yaskawa AC Servo driven system
- Internationally patented tube gripping system
- Electrical panel free of electromagnetic interference (EMI)
- CE and FDA approved

### Available Options

- Automatic loader for various tube profiles
- Safety Barrier meets OSHA requirements
- Customized drop off table meets numerous tube shape applications
- Machine base extension fits tubes up to 25 ft



Specification	Unit	LS150-4	Inch	LS208-4	Inch
Max raw tube loading length	mm	6000	236.2"	6000	236.2"
Min material waste length	mm	45	1.77"	140	5.51"
X-axis working distance/ Laser head plain motion	mm	200	7.87"	200	7.87"
X-axis speed	mm/sec	500	19.69"	500	19.69"
Y-axis working distance/ Carriage feeding	mm	6700	263.77"	6600	59.84"
Y-axis speed	mm/sec	777	30.59"	834	32.83"
Z-axis working distance/ Laser head upright motion	mm	110	4.33"	150	5.91"
Z-axis speed	mm/sec	500	19.69"	500	19.69"
B & B1-axis speed/ Front & rear chuck	deg/sec	450	450	375	375
Max cutting capacity / OD	mm	20-150	0.79"-6.0"	20-208	0.79"-8.0"
Positioning repeatability	mm	±0.03	±0.0012"	±0.03	±0.0012"
Machine dimension (L x W x H)	cm	L: 11000 W: 1800 H: 2100	L: 433" W: 70.9" H: 82.68"	L: 10500 W: 1800 H: 2400	L: 41.33" W: 70.9" H: 94.49"
Laser generator	Optical Fiber				
Max Laser Power	1000W / 2000W / 3000W				



## All Electric-Multi Stack AEMB/AEMR Series



» AB-20EMB-LR



» AB-30AEMR-LR



» AB-75AEMR-LR



» AB-80AEMR

### AEMB/AEMR-LR All Electric CNC Bender with CW & CCW bend head rotation

SPECIFICATION	UNIT	15AEMB-LR	20EMB-LR	30AEMR-LR	45AEMR-LR	75AEMR-LR	50AEMR-RBE	80AEMR-RBE	100AEMR-RBE
MAX. TUBE O.D.	mm	15 X 1.5	20 X 1.5	30 X 2.0	45 X 1.6	76.2 X 2.0	50.8 X 1.8	80 X 2.5	100 X 3.6
	inch	0.59 X 0.059	0.78 X 0.059	1.18 X 0.079	1.77 X 0.063	3.0 X 0.079	2.0 X 0.070	3.15 X 0.098	4.0 X 0.140
MAX. BENDING RADIUS	mm	10 - 55	10 - 80	15 - 90	30 - 150	40 - 230	30 - 150	40 - 230	30 - 300
	inch	0.393 - 2.16	0.39 - 3.14	0.59 - 3.541	1.18 - 5.9	1.57 - 9.05	1.18 - 5.9	1.57 - 9.0	1.18 - 11.8
MAX. LENGTH OVER MANDREL	mm	1000	1500	2800	3000	3000	2500	3000	3000
	inch	39.37	59.05	110.2	118.1	118.10	98.4	118.1	118.1
OVERALL L X W X H	mm	2700 X 800 X 1400	3100 X 850 X 1400	4400 X 650 X 1500	5200 X 1070 X 1650	5000 X 1500 X 2000	4800 X 1520 X 1500	5800 X 1800 X 1800	5950 X 1750 X 1830
	inch	106.3 X 31.4 X 55.1	122.0 X 33.5 X 55.1	17.32 X 33.4 X 59.0	204.7 X 42.1 X 64.9	216.5 X 59.1 X 78.74	188.9 X 59.8 X 59.0	228.3 X 70.8 X 70.8	234.2 X 68.8 X 72.0
TOTAL WEIGHT	kg	1400	1500	1400	4400	7000	3000	5500	7300
	lbs	2080	3300	3080	9680	15400	6600	12100	16060

### Standard feature:



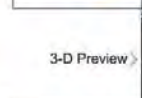
Push Bending (calendar)



Master V Control IPC+PLC system



Planetary Gear Drive



3-D Preview



RBE-Electric Carriage Booster (Model 65 and up)

### Upgrade Equipment:



Dynamic Visual Simulation

### Advantages:

- Reduced electricity consumption
- Superior controllability and repeatability
- Minimize interference
- Less tooling set up time
- Fewer mechanical adjustment
- Clean working environment
- Lowest emission of airborne noise (dBA)

AEMR-LR/AEMB-LR/AEMR series are fully electric CNC mandrel benders with 3-D graphics programming.

### Special features:

- Single rotary bend head for left and right hand bending in one machine
- Up to 14 axis servo driven controls
- RBE - Electric carriage booster for difficult or tight radius bending
- Push bend rolling (calendar)
- Patented planetary gear drive achieve 95 % energy efficiency
- Advanced user friendly touch screen IPC with WIN 7 operating system and dynamic machine visual simulation.



## Electric Hybrid-Multi Stack EMR-V / EMB-V Series



» AB • 50EMB-V



» AB • 150EMR-V

- 1) EMB-V / EMR-V Series is a touch screen control and triple stack tooling design with 5 Axes Y,B,C,X,Z (bend head horizontal and vertical shifting for tool change) driven by A/C servo motor
- 2) Combines rotary draw bending and push bending (calendaring) in the same tool stack.
- 3) Electric-driven rotary draw bending arm performs with higher accuracy, durability and less electricity consumption.
- 4) Planetary gears in bend head provide speed reduction and high torque transmission.

### EMB-V/EMR-V: MULTI STACK DRAW & PUSH-BENDING

SPECIFICATION	UNIT	18EMB-V	25EMB/R-V	30EMB/R-V	38EMB/R-V	50EMB/R-V	65EMB/R-V	80EMB/R-V	100EMB/R-V	130EMB/R-V	150EMR-V
MAX. TUBE O.D.	mm	18 X 1.6	25.4 X 1.5	30 X 2.0	3.81 X 1.8	50.8 X 2.0	85 X 2.5	80 X 2.5	100 X 3.6	127 X 3.8	152.4 X 3.0
	inch	0.71 X 0.062	1.0 X 0.059	1.18 X 0.079	1.5 X 0.071	2.0 X 0.079	2.56 X 0.098	3.15 X 0.098	4.0 X 0.141	5.0 X 0.15	6.0 X 0.12
MAX. BENDING RADIUS	mm	10 - 80	15 - 120	15 - 120	25 - 150	30 - 220	35 - 250	40 - 280	30 - 300	80 - 400	90 - 400
	inch	0.39 - 3.15	0.59 - 4.72	0.59 - 4.72	0.98 - 5.9	1.18 - 8.66	1.38 - 9.84	1.57 - 11.0	1.18 - 11.8	3.15 - 15.74	3.54 - 15.74
MAX. LENGTH OVER MANDREL	mm	1200	1500	2000	2200	2500	2500	3500	3500	4000	4000
	inch	47.24	59.05	78.74	86.6	98.4	98.4	137.8	137.8	157.5	157.5
OVERALL L X W X H	mm	2950 X 800 X 1200	3300 X 820 X 1200	4030 X 720 X 1300	4200 X 900 X 1400	4950 X 1200 X 1500	6150 X 1650 X 1500	6350 X 1750 X 2050	7050 X 1550 X 1850	8100 X 2000 X 2200	8100 X 2300 X 2100
	inch	112.2 X 31.5 X 47.2	129.9 X 36.2 X 47.2	158.6 X 28.3 X 51.2	165.3 X 35.4 X 55.1	194.9 X 47.2 X 59.0	242.1 X 64.9 X 61.0	250 X 68.8 X 80.7	277.5 X 61.0 X 72.8	318 X 78.7 X 86.6	318 X 90.5 X 82.6
TOTAL WEIGHT	kg	850	1200	1700	2080	3100	4280	5890	7500	12500	14000
	lbs	1870	2640	3740	4576	6820	9416	12958	16500	27500	30800

## Electric Hybrid-Triple Stack ETR Series



» AB • 38ETR



» AB • 80ETR

- 1) ETR Series is a touch screen control and triple stack tooling design with 4 Axes Y,B,C,X(bend head horizontal shifting for tool change) driven by A/C servo motor.
- 2) Combines rotary draw bending and push bending (calendaring) in the same tool stack.
- 3) Electric-driven rotary draw bending arm performs with higher accuracy, durability and less electricity consumption.
- 4) Planetary gears in bend head provide speed reduction and high torque transmission.

### ETR: TRIPLE STACK DRAW & PUSH-BENDING

SPECIFICATION	UNIT	25ETR	30ETR	38ETR	50ETR	65ETR	80ETR	100ETR
MAX. TUBE O.D.	mm	25.4 X 1.5	30 X 2.0	38.1 X 1.8	50.8 X 2.0	65 X 2.0	80 X 2.5	100 X 3.0
	inch	1.0 X 0.059	1.18 X 0.079	1.5 X 0.071	2.0 X 0.079	2.56 X 0.079	3.15 X 0.098	4.0 X 0.118
MAX. BENDING RADIUS	mm	15 - 120	15 - 120	25 - 150	30 - 220	35 - 250	40 - 280	30 - 300
	inch	0.59 - 4.72	0.59 - 4.72	0.98 - 5.9	1.18 - 8.66	1.38 - 9.84	1.57 - 11.0	1.18 - 11.8
MAX. LENGTH OVER MANDREL	mm	1500	2200	2200	2500	2500	3500	3500
	inch	59.05	86.61	86.6	98.4	98.4	137.8	137.8
OVERALL L X W X H	mm	3300 X 920 X 1200	4030 X 720 X 1300	4200 X 900 X 1400	4650 X 1200 X 1500	6150 X 1650 X 1500	6350 X 1750 X 2050	7050 X 1550 X 1850
	inch	129.9 X 36.2 X 47.2	158.6 X 28.3 X 51.2	165.3 X 35.4 X 55.1	183.1 X 47.2 X 59.0	242.1 X 64.9 X 61.0	250 X 68.8 X 80.7	277.5 X 61.0 X 72.8
TOTAL WEIGHT	kg	1200	1700	2080	3100	4280	5890	7500
	lbs	2640	3740	4576	6820	9416	12958	16500

**Standard feature:**

- Push Bending (calendaring)
- Master V Control IPC+PLC system
- Planetary Gear Drive
- 3-D Preview

**Upgrade option:**

- RBE-Electric Carriage Booster (Model 65 and up)
- Dynamic Visual Simulation



## Electric Hybrid-Double Stack EBR Series



» AB • 30EBR



» AB • 65EBR

- 1) EBR Series is a touch screen control and double stack tooling in the same Y,B,C,X(bend head horizontal shifting for tool change) driven by a A/C servo motor
- 2) Combines rotary draw bending and push bending (calendering) in same tool stack.
- 3) Electric-driven rotary draw bending arm performs with high accuracy, durability and less electricity consumption
- 4) Planetary gears in bend head provide speed reduction and high torque transmission

### EBR:DOUBLE STACK DRAW & PUSH BENDING

SPECIFICATION	UNIT	25EBR	30EBR	38EBR	50EBR	65EBR	80EBR	100EBR	130EBR-RBE
MAX. TUBE O.D.	mm	25.4 X1.5	30 X 2.0	38.1 X 1.8	50.8 X 2.0	65 X 2.0	80 X 2.5	100 X 3.0	127 X 3.8
	inch	1.0 X 0.059	1.18 X 0.078	1.5 X 0.071	2.0 X 0.079	2.56 X 0.079	3.15 X 0.098	4.0 X 0.118	5.0 X 0.15
MAX. BENDING RADIUS	mm	15 - 120	15 - 120	25 - 150	30 - 220	35 - 250	40 - 280	30 - 300	80 - 400
	inch	0.59 - 4.72	0.59 - 4.72	0.98 - 5.9	1.18 - 8.66	1.38 - 9.84	1.57 - 11.0	1.18 - 11.18	3.15 - 15.74
MAX. LENGTH OVER MANDREL	mm	1500	2200	2200	2500	2500	3500	3500	4000
	inch	59.05	86.61	86.6	98.4	98.4	137.8	137.8	157.5
OVERALL L X W X H	mm	3300 X 920 X 1200	4030 X 720 X 1300	4200 X 1200 X 1500	4650 X 1200 X 1500	6150 X 1650 X 1500	6350 X 1750 X 2050	7050 X 1550 X 1850	1100 X 2000 X 2200
	inch	129.9 X 36.2 X 47.2	158.6 X 28.3 X 51.2	165.3 X 35.4 X 55.1	183.1 X 47.2 X 59.0	242.1 X 64.9 X 61.0	250 X 68.8 X 80.7	277.5 X 61.0 X 72.8	433 X 78.7 X 86.6
TOTAL WEIGHT	kg	1200	1700	2080	3100	4280	5890	7500	11000
	lbs	2640	3740	4576	6820	9416	12958	16500	24200

## Electric Hybrid-Double Stack ED Series



» AB • 38ED



» AB • 50ED

- 1) ED Series is a touch screen control and double stack tooling design with 4 Axes Y,B,C,X(bend head horizontal shifting for tool change) driven by A/C servo motor.
- 2) Combines two different radii rotary draw bending in same tool stack.
- 3) Electric-driven rotary draw bending arm performs with high accuracy, durability and less electricity consumption.
- 4) Planetary gears in bend head provide speed reduction and high torque transmission.

### ED:TOUCH SCREEN DOUBLE RADII

SPECIFICATION	UNIT	12ED	18ED	25ED	30ED	38ED	50ED	65ED	80ED	100ED
MAX. TUBE O.D.	mm	12 X 1.0	18 X 1.6	25.4 X 1.5	30 X 2.0	38.1 X 1.8	50.8 X 2.0	65 X 2.0	80 X 2.5	100 X 3.0
	inch	0.5 X 0.039	0.71 X 0.062	1.0 X 0.059	1.18 X 0.079	1.5 X 0.071	2.0 X 0.079	2.56 X 0.079	3.15 X 0.098	4.0 X 0.118
MAX. BENDING RADIUS	mm	12 - 55	10 - 80	15 - 120	15 - 120	25 - 150	30 - 220	35 - 250	40 - 280	30 - 300
	inch	0.47 - 2.16	0.39 - 3.15	0.59 - 4.72	0.59 - 4.72	0.98 - 5.9	1.18 - 8.66	1.38 - 9.84	1.57 - 11.0	1.18 - 11.18
MAX. LENGTH OVER MANDREL	mm	1000	1200	1500	2200	2200	2500	2500	3500	3500
	inch	39.37	47.24	59.05	86.61	86.61	98.43	98.4	137.8	137.8
OVERALL L X W X H	mm	2000 X 800 X 1400	2850 X 800 X 1200	3210 X 650 X 1100	4030 X 720 X 1300	4200 X 900 X 1400	4650 X 1200 X 1500	6150 X 1650 X 1500	6350 X 1750 X 2050	7050 X 1550 X 1850
	inch	78.7 X 31.5 X 51.1	112.2 X 31.5 X 47.2	126.3 X 33.5 X 43.3	158.6 X 28.3 X 51.2	165.3 X 35.4 X 55.1	183.1 X 47.2 X 59.0	242.1 X 64.9 X 61.0	250 X 68.8 X 80.7	277.5 X 61.0 X 72.8
TOTAL WEIGHT	kg	430	850	1100	1700	2080	3100	3800	5600	7500
	lbs	1012	1870	2420	3740	4576	6820	8360	12320	16500

**Standard feature:**

- Push Bending (calendering)
- Master V Control IPC+PLC system
- Planetary Gear Drive
- 3-D Preview

**Upgrade option:**

- RBE-Electric Carriage Booster (Model 65 and up)
- Dynamic Visual Simulation



## Hydraulic Bender-Double Stack HD Series

» AB • 65HD



» AB • 150HD



- 1) HD Series is a touch screen control and double stack tooling design.  
Y (feeding) and B (rotation) axis driven by A/C servo motor with C (bending) axis driven by proportional hydraulic system
- 2) Combines two different radii rotary draw bending in same tool stack
- 3) Excellent performance on accuracy, durability and suitable for high production manufacturing

### HD: TOUCH SCREEN DOUBLE RADI

SPECIFICATION	UNIT	38HD	50HD	65HD	80HD	100HD	120HD	130HM-V	150HM-V
MAX. TUBE O.D.	mm	38.1 X 3.0	50.8 X 3.0	65 X 3.0	80 X 4.5	101.6 X 5.5	120 X 5.5	130 X 4.5	152.4 X 7.0
	inch	1.5 X 0.118	2.0 X 0.118	2.56 X 0.118	3.15 X 0.177	4.0 X 0.216	5.0 X 0.216	5.12 X 0.177	6 X 0.275
MAX. BENDING RADIUS	mm	25 - 150	30 - 220	35 - 250	40 - 280	60 - 400	80 - 400	80 - 300	90 - 400
	inch	0.98 - 5.91	1.18 - 8.66	1.39 - 9.84	1.57 - 11.02	2.36 - 15.75	3.15 - 15.7	3.15 - 11.81	3.54 - 23.6
MAX. LENGTH OVER MANDREL	mm	2200	2200	2500	3000	3600	5000	5000	6000
	inch	86.6	86.6	98.4	118.1	141.7	196.8	196.8	236.2
OVERALL L X W X H	mm	4000 X 1100 X 1300	4200 X 1200 X 1350	4800 X 1500 X 1600	5600 X 1700 X 1600	7000 X 1700 X 1800	8500 X 2150 X 1750	10200 X 2310 X 2300	9500 X 2500 X 2500
	inch	157.4 X 43.3 X 51.1	165.3 X 47.2 X 53.1	188.9 X 58.1 X 62.9	220.4 X 66.9 X 62.9	275.5 X 66.9 X 70.8	334.6 X 84.6 X 68.8	401.5 X 90.9 X 90.5	374 X 98.4 X 98.4
TOTAL WEIGHT	kg	1700	2800	3500	5000	6000	12500	18400	19400
	lbs	3740	6160	7700	11000	13200	27500	40480	42680

## Hydraulic Bender-Single Stack HS Series

» AB • 38HS



» AB • 80HS



» AB • 250HS



### Standard feature:

Hydraulic Bend Head



Master IV Control  
IPC+PLC system

3-D Preview

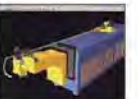


### Upgrade Option:



RBH-Hydraulic  
Carriage Booster  
(Model 65 and up)

Dynamic Visual  
Simulation



- 1) HS Series is a touch screen control and single stack tooling design.  
Y (feeding) and B (rotation) axis driven by A/C servo motor with C (bending) axis driven by proportional hydraulic system.
- 2) Excellent performance on accuracy, durability and suitable for high production manufacturing.

### HS: TOUCH SCREEN SINGLE RADIUS

SPECIFICATION	UNIT	38HS	50HS	65HS	80HS	100HS	120HS	150HS	180HS	220HS
MAX. TUBE O.D.	mm	38.1 X 3.0	50.8 X 3.0	65 X 3.0	80 X 4.5	101.6 X 5.5	120 X 5.5	152.4 X 7.0	180 X 9.0	220 X 15
	inch	1.5 X 0.118	2.0 X 0.118	2.56 X 0.118	3.15 X 0.177	4.0 X 0.216	4.7 X 0.216	6.0 X 0.275	7.08 X 0.35	8.66 X 0.59
MAX. BENDING RADIUS	mm	25 - 150	30 - 220	35 - 250	40 - 280	60 - 400	80 - 450	90 - 500	100 - 600	100 - 800
	inch	0.98 - 5.91	1.18 - 8.66	1.39 - 9.84	1.57 - 11.02	2.36 - 15.75	3.15 - 17.71	3.54 - 19.69	3.93 - 23.6	3.93 - 31.5
MAX. LENGTH OVER MANDREL	mm	2200	2200	2500	3000	3600	5000	6000	6000	6000
	inch	86.6	86.6	98.4	118.1	141.7	196.9	236.2	236.2	236.2
OVERALL L X W X H	mm	3700 X 1100 X 1300	4000 X 1200 X 1350	4800 X 1400 X 1500	5500 X 1500 X 1500	6600 X 1600 X 1550	8000 X 1800 X 1600	9000 X 2100 X 1700	10000 X 2100 X 2150	10000 X 3200 X 2100
	inch	145.6 X 43.3 X 51.1	158.6 X 47.2 X 53.1	188.9 X 55.1 X 59.1	216.5 X 59.1 X 59.1	259.9 X 62.9 X 61.0	314.9 X 70.8 X 62.9	354.3 X 82.6 X 66.9	393.7 X 82.6 X 84.8	393.6 X 125.9 X 82.6
TOTAL WEIGHT	kg	1400	2500	3000	4000	6000	8000	9500	18000	23000
	lbs	3080	5500	6600	8800	13200	17600	20900	39600	50600



## 3-Axis Hydraulic Bender

HS-P/HD-P Series



» AB • 38HD-P



» AB • 80HS-P

- 1) HS-P Series is a touch screen PLC control with single stack tooling design.  
 Y (feeding) and B (rotation) axis driven by A/C servo motor with C (bending) axis driven by hydraulic system  
 HD-P Series is a touch screen PLC control with double stack tooling design.  
 Y (feeding) and B (rotation) axis driven by A/C servo motor with C (bending) axis driven by hydraulic system  
 2) Economic and affordable model with excellent accuracy and durability.  
 Suitable for high production manufacturing

### HS-P and HD-P: ECONOMIC & AFFORDABLE TUBE BENDERS

SPECIFICATION	UNIT	38HS-P	50HS-P	65HS-P	80HS-P	38HD-P	50HD-P	65HD-P
MAX. TUBE O.D.	mm	38.1 X 3.0	50.8 X 3.0	65 X 3.0	80 X 4.5	38.1 X 3.0	50.8 X 3.0	65 X 3.0
	inch	1.5 X 0.118	2.0 X 0.118	2.56 X 0.118	3.15 X 0.177	1.5 X 0.118	2.0 X 0.118	2.56 X 0.118
MAX. BENDING RADIUS	mm	25 - 150	30 - 220	35 - 250	40 - 280	25 - 150	30 - 220	35 - 250
	inch	0.98 - 5.91	1.18 - 8.66	1.39 - 9.84	1.57 - 11.02	0.98 - 5.91	1.18 - 8.66	1.38 - 9.84
MAX. LENGTH OVER MANDREL	mm	2200	2200	2500	3000	2200	2200	2500
	inch	86.6	86.6	98.4	118.1	86.6	86.6	98.4
OVERALL L X W X H	mm	3700 X 1100 X 1300	4030 X 1200 X 1350	4800 X 1400 X 1350	5500 X 1500 X 1500	4000 X 1100 X 1300	4200 X 1200 X 1350	4800 X 1500 X 1600
	inch	145.6 X 43.3 X 51.1	158.6 X 47.2 X 53.1	188.9 X 55.1 X 53.1	216.5 X 59.0 X 59.0	157.4 X 43.3 X 51.1	165.3 X 47.2 X 53.1	188.9 X 59.0 X 63.0
TOTAL WEIGHT	kg	1400	2500	3000	4000	1700	2800	3500
	lbs	3080	5500	6600	8800	3740	6160	7700

## 2-Axis Hydraulic Bender

NC-PB Series



» AB • 50NC-PB



» AB • 75NC-PB



» AB • 100NC-PB

### NC-PB: TWO AXIS WITH PLC CONTROL

SPECIFICATION	UNIT	AB50NC-PB	AB75NC-PB	AB89NC-PB	AB100NC-PB
MAX. TUBE O.D.	mm	50.8 X 3.0	76.2 X 3.0	88.9 X 2.5	101.6 X 5.5
	inch	2.0 X 0.118	3.0 X 0.118	3.5 X 0.098	4.0 X 0.216
MAX. BENDING RADIUS	mm	30 - 220	40 - 250	50 - 300	60 - 400
	inch	1.18 - 8.66	1.57 - 9.84	1.96 - 11.8	2.36 - 15.7
MAX. LENGTH OVER MANDREL	mm	2100	2400	2600	3600
	inch	82.7	94.5	102.4	141.7
OVERALL L X W X H	mm	3750 X 1000 X 1250	4300 X 1200 X 1200	5200 X 1350 X 1350	6400 X 1600 X 1500
	inch	147.6 X 39.3 X 49.2	169.2 X 47.2 X 47.2	204.7 X 53.1 X 53.1	251.9 X 62.9 X 59.0
TOTAL WEIGHT	kg	1400	1900	3500	5000
	lbs	3080	4180	7700	11000

- 1) NC-PB Series is a touch screen PLC control and single stack tooling design with B (rotation) axis driven by A/C servo motor, C (bending) axis driven by hydraulic system Y (feeding) axis is manual operated with adjustable DBB stops.  
 2) Easy to operate and equipped with true Drop Away Clamping System.  
 3) Economic and affordable. Servo driven B axis it also provides great accuracy, and NC-PB series is suitable for sizeable production run and prototype.

**Standard feature:**

- Hydraulic Bend Head
- Master I PLC Control
- Black & White Touch Screen

**Options:**

- Over Head The Bar(s)
- Remote Controller



## Single-Axis Hydraulic Bender NC Series



»AB - 180NC



»AB - 75NC-CBF

**Standard feature:**

- Hydraulic Bend Head
- Master I PLC Control
- Black & White Touch Screen

**Options:**

- True Drop away Clamp & Overhead Tie Bar(s)
- CBF Pressure die Clamping Booster

- 1) NC Series is a touch screen PLC control and single stack tooling design  
B (rotation) axis is manually operated  
Y (feeding) axis is manually operated with option of 4 position DBB flip stops  
C (bending) axis is hydraulic driven system
- 2) Hydraulic Pressure Die Assist (PDA) with flow control and air cooling system are standard
- 3) Multi-bend data storage memory facilitates easy operation
- 4) Economic and affordable with great accuracy. NC series is suitable for simple bending production run or prototype

■ NC:SINGLE AXIS WITH PLC CONTROL

SPECIFICATION	UNIT	AB38NC	AB50NC	AB75NC	AB89NC	AB100NC
MAX. TUBE O.D.	mm	38.1 X 3.0	50.8 X 3.0	76.2 X 3.0	88.9 X 2.5	101.6 X 5.5
	inch	1.5 X 0.118	2.0 X 0.118	3.0 X 0.118	3.5 X 0.157	4.0 X 0.217
MAX. BENDING RADIUS	mm	25 - 170	30 - 250	40 - 300	40 - 350	60 - 400
	inch	0.98 - 6.6	1.18 - 11.81	1.57 - 11.81	1.57 - 13.77	2.3 - 15.7
MAX. LENGTH OVER MANDREL	mm	1900	2200	2600	2600	3600
	inch	74.8	86.6	102.4	102.4	141.7
OVERALL L X W X H	mm	2600 X 900 X 1100	3000 X 900 X 1200	3600 X 1200 X 1200	3700 X 1200 X 1200	4800 X 1500 X 1400
	inch	102.4 X 35.4 X 43.3	118.1 X 35.4 X 47.2	141.7 X 47.2 X 47.2	145.7 X 47.2 X 47.2	188.9 X 59.1 X 55.1
TOTAL WEIGHT	kg	850	950	1900	2200	4500
	lbs	1870	2090	4180	4840	9900

■ NC:SINGLE AXIS WITH PLC CONTROL

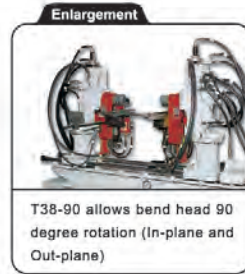
SPECIFICATION	UNIT	AB120NC	AB150NC	AB180NC	AB220NC
MAX. TUBE O.D.	mm	127 X 3.5	152.4 X 7.0	180 X 9.0	220 X 8.0
	inch	5.0 X 0.217	6.0 X 0.275	7.0 X 0.275	8.6 X 0.275
MAX. BENDING RADIUS	mm	80 - 450	90 - 550	100 - 600	100 - 700
	inch	3.15 - 19.68	3.5 - 21.6	3.93 - 23.6	4.72 - 34.6
MAX. LENGTH OVER MANDREL	mm	5200	6000	6000	6000
	inch	204.7	236.2	236.2	236.2
OVERALL L X W X H	mm	7000 X 1700 X 1600	8100 X 2100 X 1700	8100 X 2300 X 1700	10000 X 2300 X 1900
	inch	275.5 X 66.9 X 63.0	318.8 X 82.6 X 66.9	318.8 X 90.6 X 66.9	393.7 X 90.8 X 74.8
TOTAL WEIGHT	kg	7200	9000	9800	16500
	lbs	15840	19800	21560	36300



## T-Series



» T38



T38-90 allows bend head 90 degree rotation (In-plane and Out-plane)



» CNCT38-4A

- 1) T-Series Twin head compression bender is suitable for symmetric bend parts
- 2) Tube compression system use crank-link system, touch and very strong compression force to ensure high bending quality
- 3) Rapid movement of 2 bend heads with excellent locking power to avoid slipping during the bend.

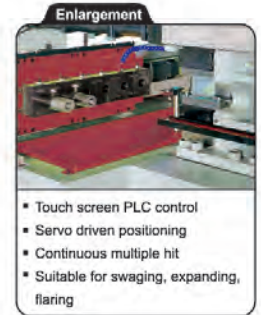
### T SERIES.TWIN HEAD COMPRESSION BENDING NC CONTROL

SPECIFICATION	UNIT	T38	T50	T38-90	CNCT38-4A	CNCT38-5A
MAX. TUBE O.D.	mm	38.1 X 2.5	50 X 2.0	38.1 X 2.5	38 X 2.5	38 X 2.5
	inch	1.5 X 0.098	2.0 X 0.063	1.5 X 0.098	1.5 X 0.098	1.5 X 0.098
MAX. BENDING RADIUS	mm	38 - 180	40 - 250	38 - 180	38 - 180	38 - 180
	inch	0.98 - 6.6	1.57 - 9.84	0.98 - 6.6	1.5 - 6.6	1.5 - 6.6
MULTI TUBE BENDING - OD 3/4"	pc	3~4	4~5	3~4	3~4	3~4
MULTI TUBE BENDING - OD 7/8"	pc	2~3	3~4	2~3	2~3	2~3
MULTI TUBE BENDING - OD 1"	pc	1~2	2~3	1~2	1~2	1~2
MULTI TUBE BENDING - OD 1-1/2"	pc	1	1~2	1	1	1
OVERALL L X W X H	mm	1900 X1000 X1500	2800 X1400 X1800	1900 X1000 X1500	7000 X 1200 X 1500	7000 X 1200 X 1500
	inch	174.8 X 39.4 X 59.1	110.2X 55.1 X 70.8	174.8 X 39.4 X 59.1	275.6 X 47.2 X 59.1	275.6 X 47.2 X 59.1
TOTAL WEIGHT	kgs	1000	1800	1000	2100	2200
	lbs	2200	3960	2200	4620	4840

## EF-End Forming



» EF-30-6



- Touch screen PLC control
- Servo driven positioning
- Continuous multiple hit
- Suitable for swaging, expanding, flaring

## CT-Circular Saw



» CT-325

### EF SERIES. END FORMING MACHINE PLC CONTROL

SPECIFICATION	UNIT	EF30-3	EF30-6	EF50-6
MAX. TUBE O.D.	mm	30	30	50
	inch	1.18	1.18	1.97
NUMBER OF FORMING STATION	hits	3	6	6
	inch	3	6	6
FORM STROKE LENGTH	pc	100	100	100
	pc	3.94	3.94	3.94
FORM PITCH	pc	55	55	55
	pc	2.17	2.17	2.17
OVERALL L X W X H	mm	1850 X 1100 X 1700	1850 X 1100 X 1700	2200 X 1180 X 1800
	inch	72.83 X 43.3 X 66.9	72.83 X 43.3 X 66.9	86.6 X 45.7 X 70.8
TOTAL WEIGHT	kgs	1100	1100	2000
	lbs	2420	2420	4400

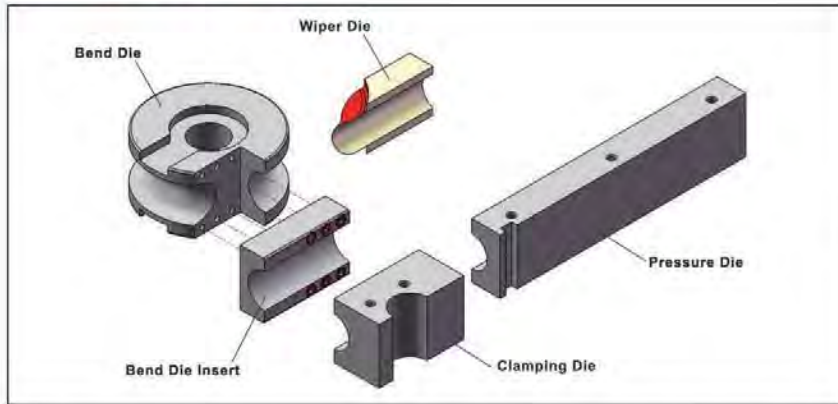
### CT CIRCULAR SAW

SPECIFICATION	UNIT	CT325
ROUND TUBE	mm	44 - 101.6
	inch	4
SQUARE TUBE	mm	70 X 70
	inch	2.75 X 2.75
RETANGULAR TUBE	mm	125 X 75
	inch	5 X 3
SOLID BAR	mm	50
	inch	2
OVERALL L X W X H	mm	1700 X 780 X 1600
	inch	66.9 X 29.9 X 62.9
TOTAL WEIGHT	kgs	800
	lbs	1760



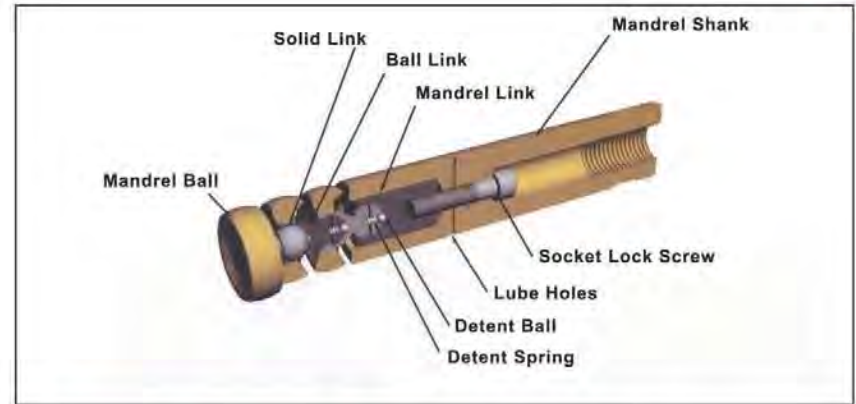
## ALPINE TOOLING

### Bending Die Description



Alpine Tooling offers precision high performance tools for all applications such as Aerospace, Automotive, Motorcycle, Marine, Medical, Furniture and general fabrication.

- |   |  |   |
|---|--|---|
| <p><b>Bend Die</b></p> <ul style="list-style-type: none"> <li>• Single Stack</li> <li>• Compound Die</li> <li>• Add-on Stack</li> <li>• Bend Roller</li> </ul> <p><b>Specification</b></p> <ul style="list-style-type: none"> <li>• CLR : Center Line Radius</li> <li>• ISR : InSide edge Radius</li> </ul> | <p><b>Clamp Die</b></p> <ul style="list-style-type: none"> <li>• Serrated</li> <li>• Knurled</li> <li>• Smooth</li> <li>• Grit blast</li> <li>• Clamp Roller</li> </ul> <p><b>Mandrel</b></p> <ul style="list-style-type: none"> <li>• Standard (Titanium coating)</li> <li>• Close Pitch (Tight Radius)</li> <li>• Shaped – Square, Oval</li> <li>• Mandrel Link – Ball Link, Chain link</li> </ul> | <p><b>Pressure Die</b></p> <ul style="list-style-type: none"> <li>• Heart-shaped (no mandrel)</li> <li>• Compression</li> <li>• Smooth</li> <li>• Pressure Roller</li> </ul> <p><b>Standard length: 180 degree bend</b></p> <ul style="list-style-type: none"> <li>• Pressure Roller or Bronze material for oversize bend radius</li> </ul> |
| <p><b>Wiper die</b></p> <ul style="list-style-type: none"> <li>• Square Back (re-touchable)</li> <li>• Insert Tip</li> <li>• Special Coating</li> <li>• Adjustable Holder</li> </ul>  | <p><b>Clamp Die</b></p> <ul style="list-style-type: none"> <li>• 1.25" Offset</li> <li>• Adjustable 1.5" key shaft</li> <li>• Adjustable holder bracket</li> </ul>   | <p><b>Pressure Die</b></p> <ul style="list-style-type: none"> <li>• 0.25" Square keyway</li> <li>• Adjustable holder bracket</li> </ul>   |



### MANDREL AND WIPER DIE SELECTION CHART

Key to Chart

$$\text{Wall factor} = \frac{\text{Tube Outside Diameter}}{\text{Wall Thickness}}$$

P = Plug Mandrel  
 F = Formed Mandrel  
 M = Ball Mandrel  
 W = Wiper Die  
 # = Number of Balls

$$"D" \text{ of bend} = \frac{\text{Bend Centerline Radius}}{\text{Tube Outside Diameter}}$$

Example: M 3 W = Mandrel, 3 Ball, Wiper Die

#### » D of Bend

	1	1.25	1.5	2	2.5	3	4	5
10	M1	M1	M1	M1	P	P		
15	M1W	M1W	M1	M1	P	P		
20	M2W	M1W	M1W	M1	M1	M1	P	
25	M3W	M2W	M1W	M1W	M1	M1	M1	
30	M3W	M3W	M2W	M2W	M1W	M1	M1	M1
35	M3W	M3W	M3W	M2W	M2W	M2W	M2	M1
40	M4W	M3W	M3W	M3W	M3W	M3W	M2W	M2
45	M4W	M3W	M3W	M3W	M3W	M3W	M2W	M2W
50	M4W	M3W	M3W	M3W	M3W	M3W	M2W	M2W
60	M4W	M4W	M3W	M3W	M3W	M3W	M2W	M2W
70	M5W	M5W	M5W	M3W	M3W	M3W	M3W	M2W
80	M5W	M5W	M5W	M5W	M3W	M3W	M3W	M2W
90	M5W	M5W	M5W	M5W	M3W	M3W	M3W	M3W
100	M5W	M5W	M5W	M5W	M5W	M3W	M3W	M3W
125	M5W	M5W	M5W	M5W	M5W	M5W	M4W	M4W
150	M6W	M6W	M6W	M6W	M5W	M5W	M4W	M4W
175	M7W	M7W	M7W	M7W	M7W	M6W	M6W	M6W
200	M10W	M10W	M10W	M10W	M9W	M9W	M8W	M8W

**Remark:**

1. Non-shaded area, use standard style flexible mandrel.
2. Shaded area, use close pitch style flexible mandrel.