



Complete Solution for  
Tube and Pipe

# A & V SERIES BENDERS

## 3-11 Electric Servo Axis

A Series / 3-4 Axis + Draw Bending

V Series / 4-11 Axis + 6 Bending Stacks + Draw + Roll + 1D Bending



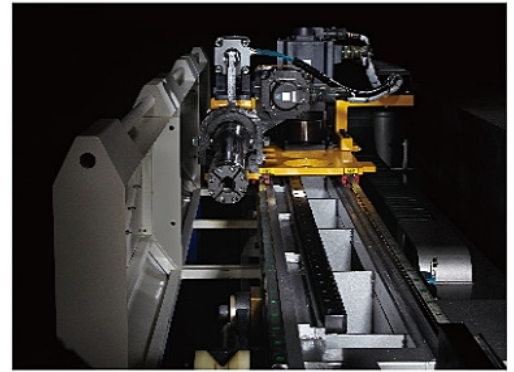
# DGT

Advanced DGT

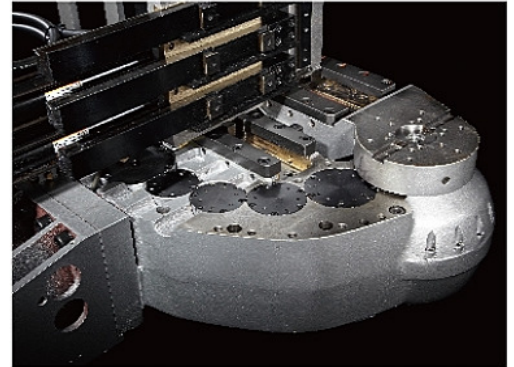
SOCO's unique DGT technology (Direct Gear Transmission) is the worldwide patented bending system that brings you the most efficient and stable bending process, offering the highest accuracy and repeatability in draw and roll bending.

#### The Advantages of DGT

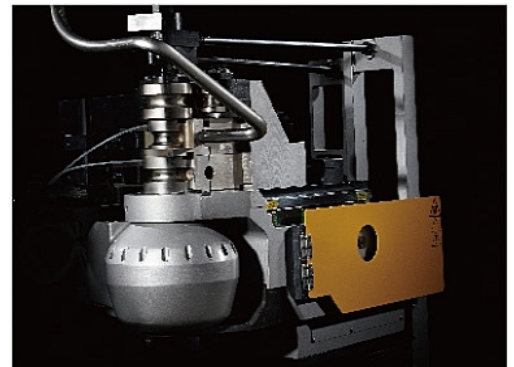
- Chain free transmission
- Built-in gearbox with direct connection to electric servo
- Highest transmission performance (90%+ efficiency)
- High bending accuracy ( $\pm 0.05^{\circ} \sim \pm 0.1^{\circ}$ )
- Low noise level
- Maximum Working Area = Minimal Interference
- Elongated neck for superior clearance
- Compact bending head
- Side carriage and bending head



① Side Carriage



② DGT technology



③ Minimal Interference



**DGT**  
Direct Gear Transmission

## Software and Operation Interface

SOCO bending range is available with an Industrial PC (IPC) + Touch Screen (TS version). Here are some of the features included:

### Software Features :

- Automatic springback compensation
- Recapturing function for short lengths
- Data entry for both XYZ and YBC coordinates
- XYZ to YBC coordinates conversion
- YBC to XYZ coordinates conversion
- Arm return programming mode (Overmode)
- Arc Radius calculator for large radius bending
- Carriage Boost settings' page for 1D Bending
- Ability to use Positive and Gripper Mode Feeding in the same part
- File management for parts and tooling
- Data storage of files ( 2 million files , 50 bends per file ) ( \* )
- 3D display and rotation of parts
- Mirroring and image reversal of parts
- Ability to edit files while Bending
- Windows platform
- Self diagnostics + Error messages display
- Connection and Auto compensation to CMM systems ( \*\* )
- Simultaneous opening of files ( 4 files at one time )
- Programmable mandrel extraction and mandrel lubrication
- Individually programmable axes
- Multiple built-in action and bending sequences
- Built-in internet connection for Remote troubleshooting

### Options

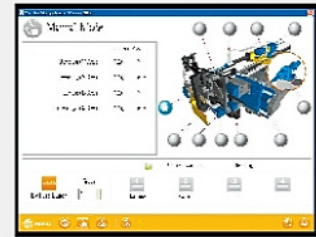
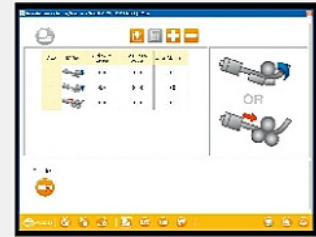
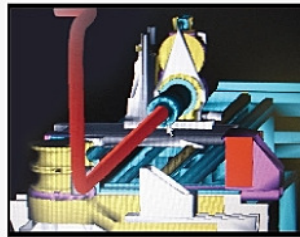
- Bending interference and collision simulator ( \*\*\* )
- Report system for Production Management

( \* ) May be extended upon request

( \*\* ) On most CMM, non-contact probe measuring systems

( \*\*\* ) On selected CNC tube bender models

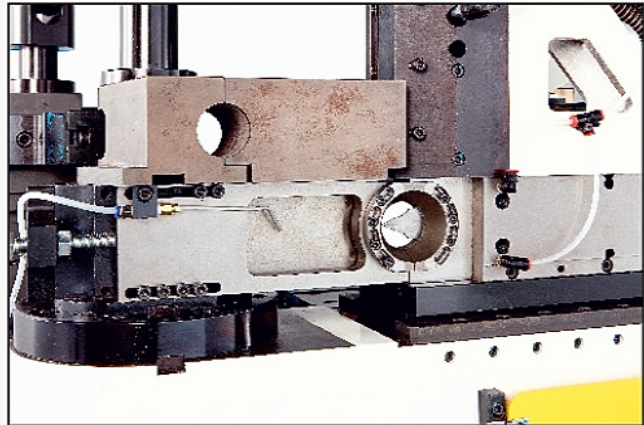
\* Due to continuous improvements and designs; the manufacturer reserves the right to modify or make any changes of all models without notice.



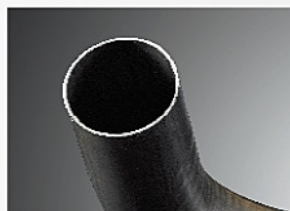
## 2C The SOCO DBS System

This patented Double Blades Shearing System may be implemented on all SOCO Booster benders ( Only for 80mm & 90mm Bender ). Some of the features:

- The Double Blades Shearing System allows for automation of bending and cutting processes in one machine, from a single tube
- This system creates the least amount of cutting deformation, enabling the finished part to be immediately used for a subsequent process without having to calibrate or deburr it
- By bending and cutting continuously, there is virtually no waste between bends, saving vast amounts of material per year
- Savings on space, manpower, machinery and material, while increasing production rates
- Higher precision and quality in finished parts, as the bent part does not need to be manually taken to a separate machine to be cut into pieces on a semi-automatic saw
- The software allows for programming up 4 different parts on the same stock material, maximizing utilization of the complete tube.



SOCO Patent - DBS System



DBS System - Perfect Cutting Face



Non-DBS System

# A Series

3 - 4 Electric Axis

Draw Bending



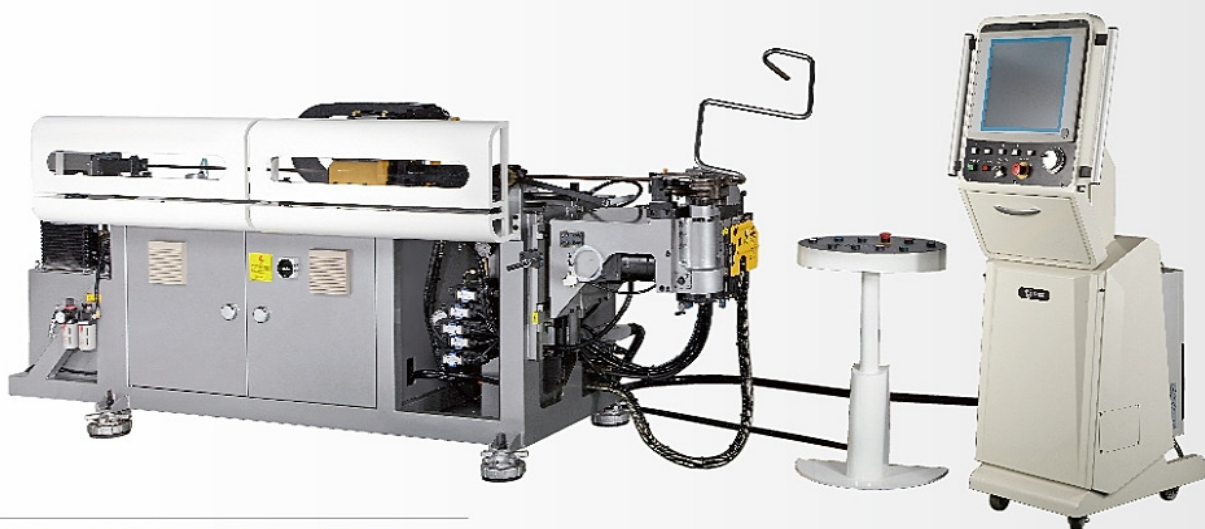
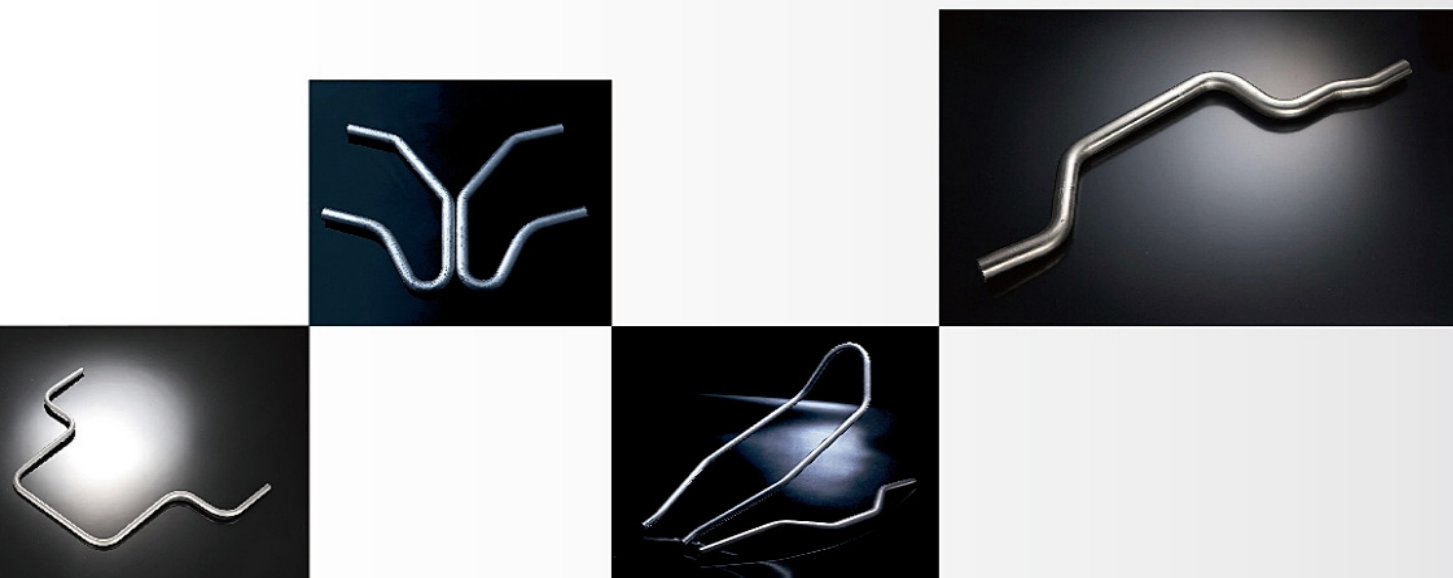
Equipped with 3 ~ 4 electric CNC axis, multiple bending stacks and the unique DGT technology, this line of SOCO tube benders can offer one of highest performance solutions available in the market.

#### Machine Features:

- With SOCO's unique DGT technology
- Rack pinion feeding
- Side positioned bending head and carriage
- Elongated bending neck
- Electric servo controlled axes
- Centralized greasing for sliding area
- 2 speeds, early mandrel extraction
- Automatic mandrel lubrication
- Touch Screen with IPC ( Industrial PC )
- Single or multi-stacks
- Independent pressure die system for each bending stack
- Wiper die seat and lubrication
- May be equipped with optional Automatic Loading System ( AF ) and Automatic Unloading System ( AUL )
- 80mm and 90mm range may be equipped with SOCO DBS system ( 2C – Double Blades Shearing ) ( Optional )
- All Electric: SB-12x3A-2S

## SPECIFICATIONS

| Specifications / Model                          | SB-12x3A-2S       | SB-19x3A-2S       | SB-30x4A-2S       | SB-39x3A-1S<br>SB-39x4A-2S                             | SB-51x4A-2S        | SB-63x4A-2S        | SB-80x4A-2S        | SB-90x4A-2S        |
|---|-------------------|-------------------|-------------------|--|--------------------|--------------------|--------------------|--------------------|
| Mild Steel Capacity ( mm ) ( CLR 1.5D )         | Ø10.0 x 1.2t      | Ø19.05 x 1.0t     | Ø30.0 x 1.5t      | Ø38.1 x 3.2t   | Ø50.8 x 2.8t       | Ø63.5 x 2.5t       | Ø76.2 x 2.0t       | Ø88.9 x 2.5t       |
| Stainless Capacity ( mm ) ( CLR 1.5D )          | Ø8.0 x 0.9t       | Ø16 x 1.0t        | Ø25.4 x 1.2t      | Ø38.1 x 2.2t   | Ø50.8 x 2.0t       | Ø63.5 x 2.0t       | Ø76.2 x 1.5t       | Ø88.9 x 1.6t       |
| Max. Tube Length With Mandrel ( mm )            | 1650              | 2300              | 2670              | 3000 ( 1S )<br>3850 ( 2S )                             | 3700               | 3700               | 4600               | 4600               |
| Max. Draw Bending Radius ( mm )                 | 60                | 80                | 120               | 180  | 250                | 250                | 250                | 250                |
| Max. Bending Radius Difference ( R1-R2 ) ( mm ) | 25                | 30                | 38                | 50 ( 2S )  | 75                 | 75                 | 80                 | 80                 |
| Bending Accuracy                                | ±0.1°             | ±0.1°             | ±0.1°             | ±0.1°  | ±0.1°              | ±0.1°              | ±0.1°              | ±0.1°              |
| Rotation Accuracy                               | ±0.1°             | ±0.1°             | ±0.1°             | ±0.1°  | ±0.1°              | ±0.1°              | ±0.1°              | ±0.1°              |
| Feeding Accuracy ( mm )                         | ±0.1              | ±0.1              | ±0.1              | ±0.1   | ±0.1               | ±0.1               | ±0.1               | ±0.1°              |
| Machine Dimension ( mm ) ( L x W x H )          | 2170 x 800 x 1140 | 3100 x 900 x 1200 | 3380 x 950 x 1200 | 4430 x 1580 x 1270 ( 1S )<br>4800 x 1340 x 1280 ( 2S ) | 5000 x 1400 x 1500 | 5000 x 1500 x 1500 | 7000 x 2300 x 2000 | 7000 x 2300 x 1700 |
| Gross Weight: ( Kg )                            | 1100              | 1400              | 1700              | 2650 ( 1S )<br>2850 ( 2S )                             | 4000               | 4200               | 9000               | 10500              |



## SB-19X3A-2S

CNC tube bender with capacity up to  $\varnothing 19.05\text{mm}$ .  
3 electric axes and 1~2 stacks of tooling



## SB-63X4A-2S

CNC tube bender with capacity up to  $\varnothing 63.5\text{mm}$ .  
4 electric axis and 1~ 2 stacks of tooling.

# V

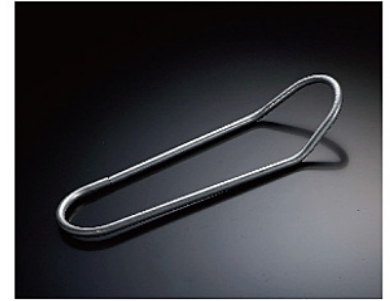
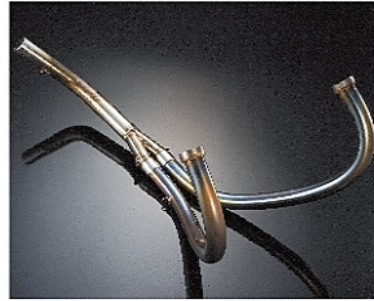
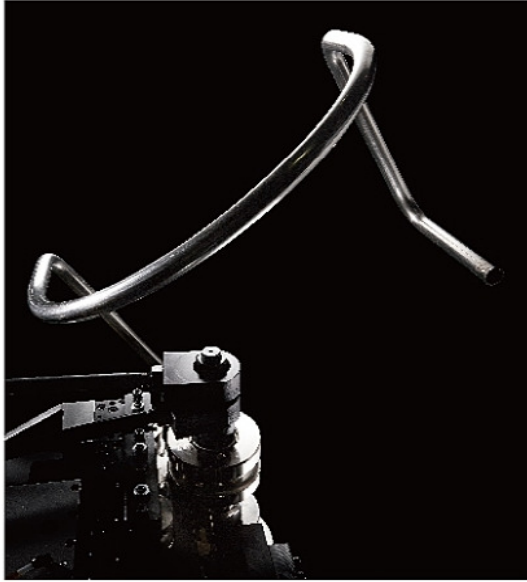
# Series

## 4-11 Electric Axis

### Draw+Roll+1D Bending

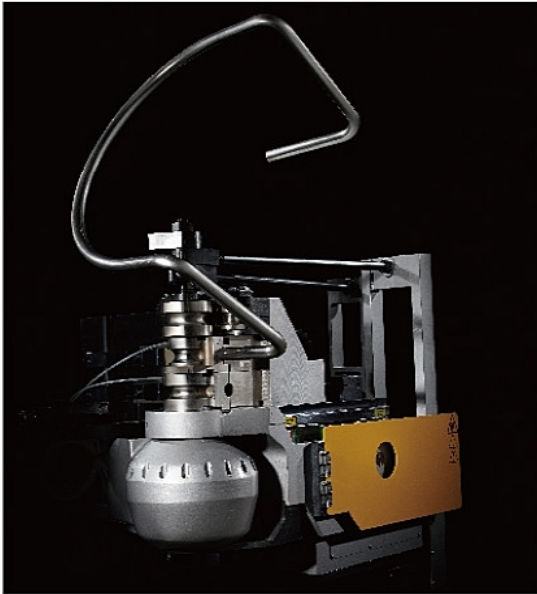
The V series CNC tube benders combine Draw, Roll and 1D Bending technology. This combination allows 2 different fixed radiuses and multiple large roll bending radiuses in a single part, as well as a programmable carriage boost for CLR = 1D Bending. Coupled with Individual Pressure Die Systems assist in each draw bending stack, it brings superior performance and flexibility.

The MRV series tube bender offers small radius bending + Roll bending + 1D Bending in the same machine.



## SPECIFICATIONS

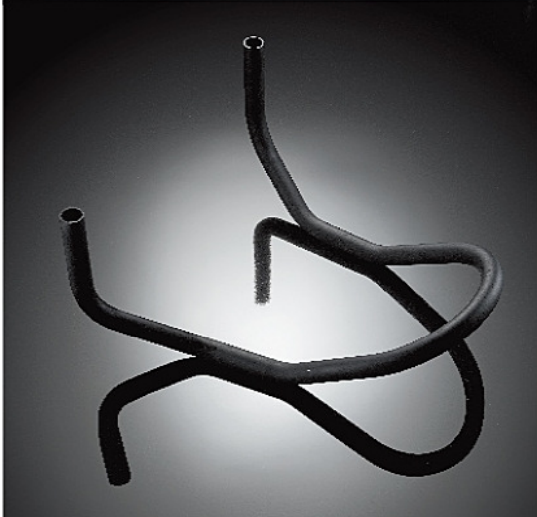
| Specifications / Model                      |                        |                     | SB-20X4A-3SV  | SB-30X4A-3SV<br>SB-30X5A-MRV<br>SB-30X6A-MRV | SB-39X4A-3SV<br>SB-39X6A-MRV<br>SB-39X9A-MRV | SB-51X4A-3SV    | SB-63X4A-3SV<br>SB-63X5A-MRV<br>SB-63X6A-MRV | SB-80X4A-3SV<br>SB-80X8A-MRV<br>SB-80X11A-MRV | SB-90X4A-3SV<br>SB-90X8A-MRV |
|---|------------------------|---------------------|---------------|--|--|-----------------|--|---|------------------------------|
| Mild Steel Capacity ( mm ) ( CLR 1.5D )     |                        |                     | Ø20 X 1.2t    | Ø30.0 X 1.5t                                 | Ø38.1 X 3.2t                                 | Ø50.8 X 2.8t    | Ø63.5 X 2.5t                                 | Ø76.2 X 2.0t                                  | Ø88.9 X 2.5t                 |
| Stainless Capacity ( mm ) ( CLR 1.5D )      |                        |                     | Ø16X 1.2t     | Ø25.4 X 1.2t                                 | Ø38.1 X 2.2t                                 | Ø50.8 X 1.9t    | Ø63.5 X 2.0t                                 | Ø76.2 X 1.5t                                  | Ø88.9 X 1.6t                 |
| MRV Type<br>Die Arrangement<br>( mm )       | 6 Stacks               | ---                 | Ø10 ~ Ø5      | Ø15.875 ~ Ø22.2                              | ---  | ~ Ø 25.4        | ---  | ~ Ø44.5                                       |                              |
|   | 5 Stacks               | ---                 | Ø15 ~ Ø10     | Ø22.2 ~ Ø28.575                              | ---  | Ø25.4 ~ Ø31.75  | ~ Ø32  | Ø47.6 ~ Ø63.5                                 |                              |
|   | 4 Stacks               | ---                 | Ø20 ~ Ø15     | Ø28.575 ~ Ø38.1                              | ---  | Ø31.75 ~ Ø44.45 | Ø35 ~ Ø51                                    | Ø69.85 ~ Ø88.9                                |                              |
|   | 3 Stacks               | ---                 | Ø30 ~ Ø20     | ---  | ---  | Ø44.45 ~ Ø63.5  | Ø54 ~ Ø76.2                                  | ---   |                              |
| Max. Tube Length<br>With Mandrel ( mm )     |                        |                     | 2070          | 2670   | 3850   | 3700            | 3700   | 4600  | 4600                         |
| Max. Draw Bending Radius ( mm )             |                        |                     | 80            | 120  | 180  | 250             | 250  | 250   | 250                          |
| Max. Bending Radius<br>Difference ( R1-R2 ) |                        |                     | 30            | 38 / 30 / 30                                 | 50 / 50 / 30                                 | 75              | 75 / 75 / 30                                 | 80 / 50 / 50                                  | 80 / 80                      |
| Bending<br>Radius                           | Draw<br>Bending        | Round Tube          | 1.5D ~ 4D     | 1.5D ~ 4D                                    | 1.5D ~ 5D                                    | 1.5D ~ 5D       | 1.5D ~ 5D                                    | 1.5D ~ 3.3D                                   | 1.5D ~ 3.3D                  |
|   |                        | Rectangular<br>Tube | 2.5D ~ 4D     | 2.5D ~ 4D                                    | 2D ~ 5D                                      | 2D ~ 5D         | 2D ~ 5D                                      | 2.5D ~ 3.3D                                   | 2.5D ~ 3.3D                  |
|   | Roll<br>Bending<br>(1) | Round Tube          | 6D ~ ∞        | 6D ~ ∞                                       | 6D ~ ∞                                       | 6D ~ ∞          | 6D ~ ∞                                       | 8D ~ ∞  | 8D ~ ∞                       |
|   |                        | Rectangular<br>Tube | 8D ~ ∞        | 8D ~ ∞                                       | 8D ~ ∞                                       | 7D ~ ∞          | 8D ~ ∞                                       | 12D ~ ∞                                       | 12D ~ ∞                      |
| 1D Bending                                  |                        |                     | Yes           | Yes  | Yes  | Yes             | Yes  | Yes   | Yes                          |
| Max. Bending Angle                          |                        |                     | 190°          | 190°   | 190°   | 190°            | 190°   | 190°  | 190°                         |
| Machine Dimension<br>( mm ) ( L x W x H )   | 3SV Type               | 2780x950x1200       | 3380x900x1200 | 4800x1340x1280                               | 5000x1500x1500                               | 5000x1400x1500  | 7000x1650x2000                               | 7000x2100x1700                                |                              |
|   | MRV Type               | ---                 | 3890x950x1200 | 4700x1350x1220                               | ---  | 5100x1600x1500  | 7000x2100x1700                               | 7000x2100x1700                                |                              |
| Gross Weight ( Kg )                         |                        |                     | 1500          | 1800   | 3500   | 4500            | 5500   | 9500  | 10500                        |



Machine Features:

- With SOCO's unique DGT technology
- Rack pinion feeding
- SOCO Proprietary Operation Software
- Multi-stacks for Draw and Roll (Large Radius) bending
- Programmable Boosting Force for 1D Bending (\*)
- Ability to bend parts with "0" straight lengths
- Programmable arc lengths for large radiuses
- Roll Bending Springback compensation settings
- Special bending compensation and data storage fields
- Low noise level with highest transmission performance
- 80mm and 90mm range may be equipped with SOCO DBS system  
( 2C – Double Blades Shearing ) ( Optional )
- All Electric: SB-39x9A-MRV  
SB-80x11A-MRV

(\*) in accordance to material's elongation ratio





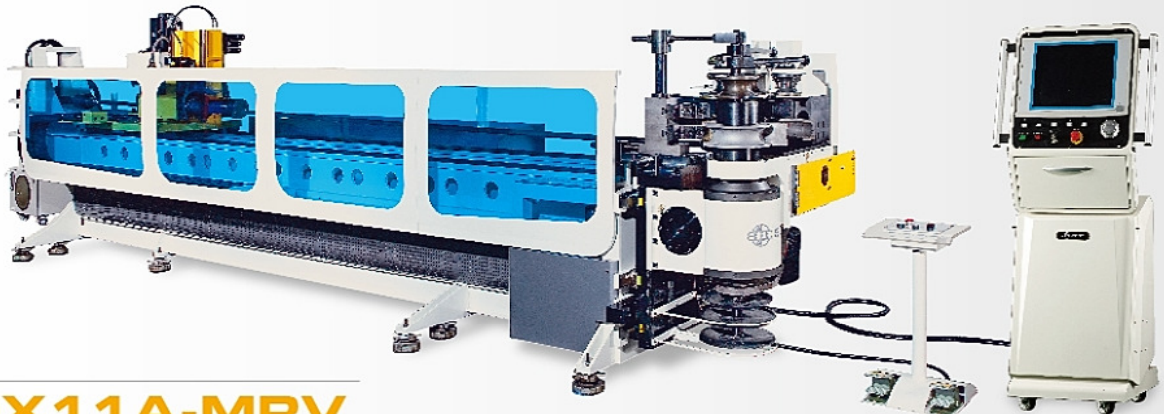
## SB-39X4A-3SV+Punching

CNC tube bender with capacity up to  $\varnothing$  38.1mm, Draw and Roll bending, 4 electric axes and 3 stacks of tooling. Equipped with "Punching" function.



## SB-39X9A-MRV

CNC tube bender with capacity up to  $\varnothing$  38.1mm. All electric servos(9 Axis), with up to 6 stacks of tooling with Draw and Roll + 1D tube bending.



## SB-80X11A-MRV

CNC tube bender with capacity up to  $\varnothing$  76.2mm, Draw and Roll + 1D bending, 11 electric axis and 6 stacks of tooling. Optional "SOCO DBS system"

## Draw + Roll +1D Bending

The technology can create a part which has multiple draw bending radiuses (R1 & R2 ), while creating a larger radiuses through the roll bending process. Coupled with a settable carriage booster, it allows bending radiuses as small as 1 X OD.





[www.soco.com.tw](http://www.soco.com.tw)

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