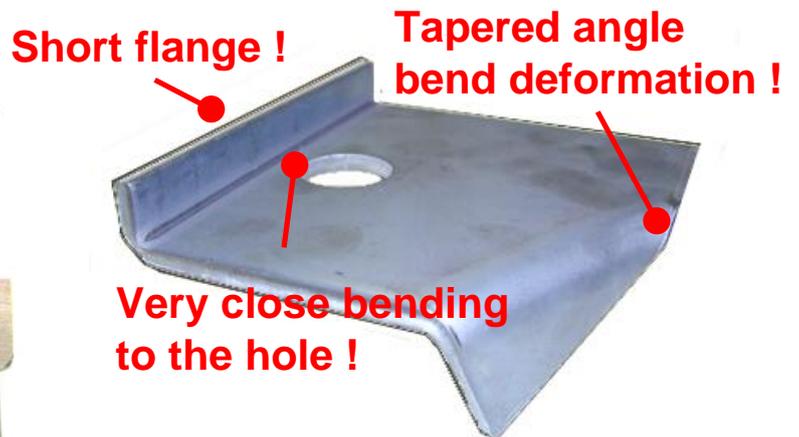
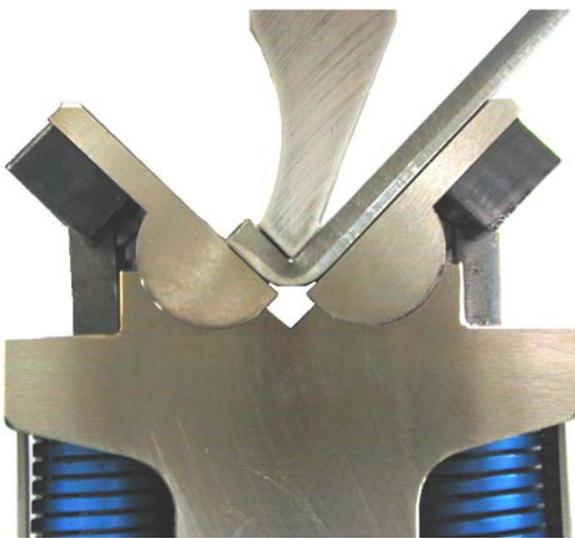


2. Multi-purposed bending solution tool

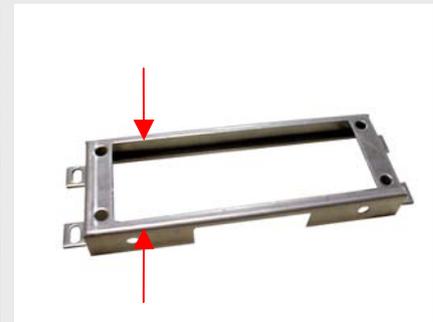
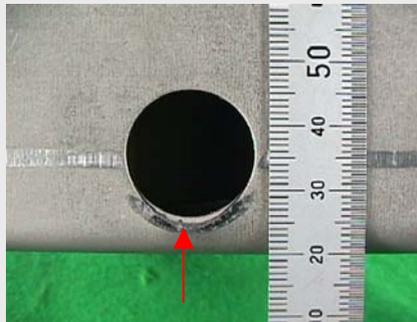
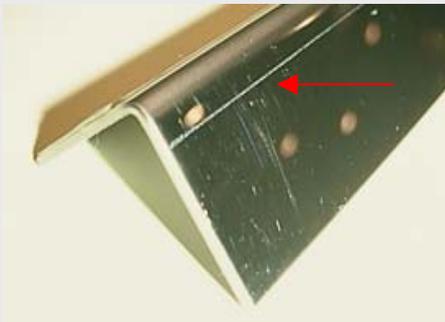
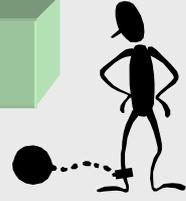
Proposal of Wing bend tool



2. Potential issue for bending application !

Bending tool (standard die)

- 1) Holes close to the bend line deform and peel up.
This spoils the component and it will be rejected as scrap.
- 2) To avoid this, the component will be machined after bending. This increases the production cost.
No chance for competition!
- 3) Mirror finish stainless steel is difficult to bend without leaving bending line marks.
Marks cause the part to be scrapped.



Easier bending to avoid the marks, peeled-off holes and the deformation is really demanded!

Improvement proposal

The solution tooling for bending work dissatisfaction

By using Wing bend tool...



- 1) Work without bending line.
* **NOTE)** Protective vinyl sheet is required.
- 2) Shorter flange length.
- 3) No hole deformation.
- 4) No elongated angle bending.



2. Wing bend tool effectiveness by Product type

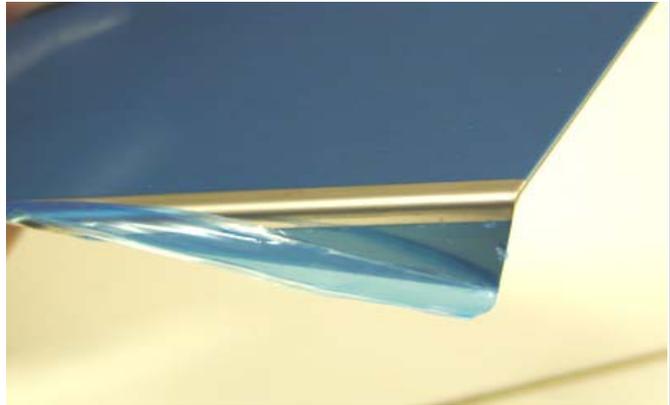
Reference data

Industries : Sash maker

Product name : Architectural column Thickness 2.0 t Stainless steel

Needed solutions by the customer

- No marking is allowed as finished surface.
- White coated vinyl would be cut by bending work.



Current process method

- Using very narrow V opening.

Stainless 2.0mm thick V12 (appropriate) → V10

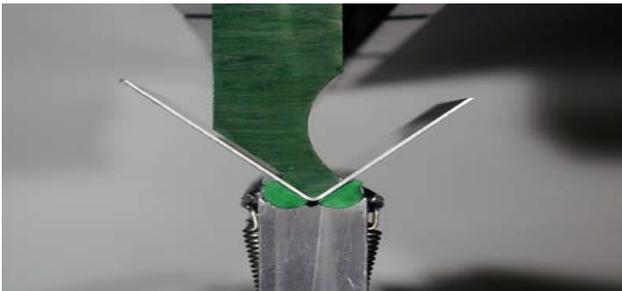
- Covering with white protective vinyl sheet

One sheet is not good enough , so using two sheets of white vinyl

How the situation has been improved by Wing bend?

Model WB230

No cut for white vinyl sheet (No marking remained)



Effectiveness

- Cheaper blue color protective sheet can be used.
- Multiple different thickness sheet can be applied to one die.
This reduces the die set up time.

Now

Two white protective sheets

New

One blue sheet

2. Wing bend tool effectiveness by Product type

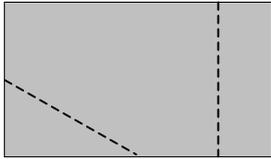
Reference data

Industries : Can manufacturing

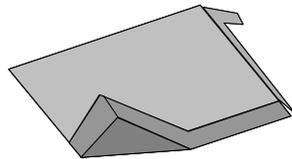
Current production issue

Product : Bracket Thickness 6.0t Mild steel

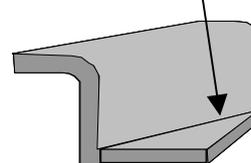
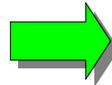
Corner radius is needed



Oblique



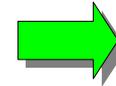
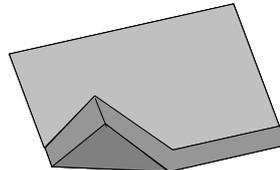
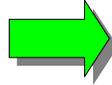
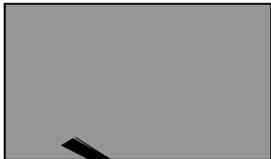
Deformation



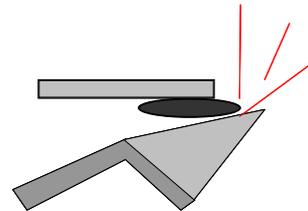
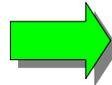
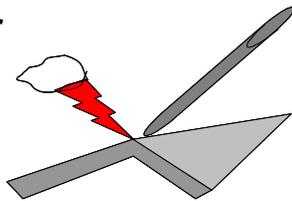
Welding is not accepted

Corner radius is needed for triangle part as well as opposite side

Current process



Notching by laser before bending



Welding after bending

Finish by sander

How was the improvement made by Wing bend?

Model WB650

Demonstrated the same products by customer's machine.
No deformation in bending line and good finish.



Effectiveness

- No process is required before and after the bending.
- Good finish without bending line mark

Now	Notching	Bending	Weld & finish
New	Bending		

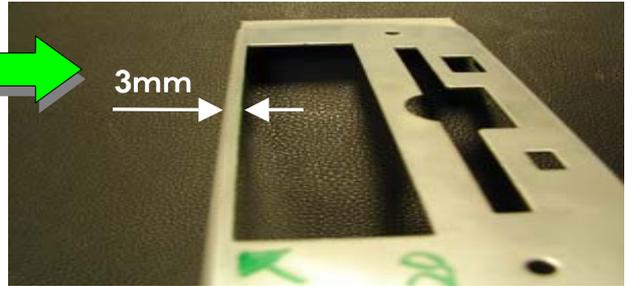
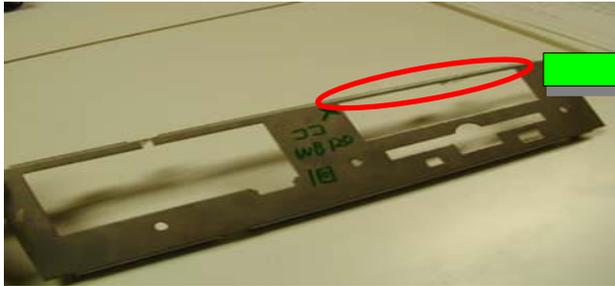
2. Wing bend tool effectiveness by Product type

Reference data

Industries : Communication & Precision parts

Current production issue

Product computer parts 1.0m thick white vinyl protective sheet.

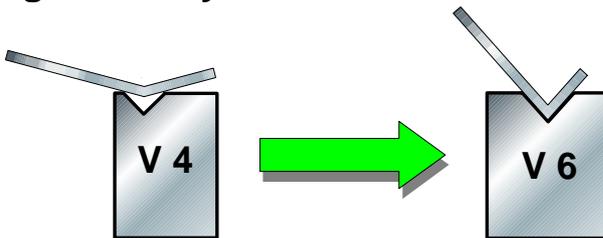


One bend is not good enough by standard die as the flange length is too short.

No painting as finish as sheet surface

Current process

Rough bend by V4 die and then bend again with V6 die



Model WB 120 enabled just one bend to finish



Effectiveness

- Process reduction
- No mark and no cut for blue vinyl sheet

Now	Bending	Set up die change	Bending
New	Bending		

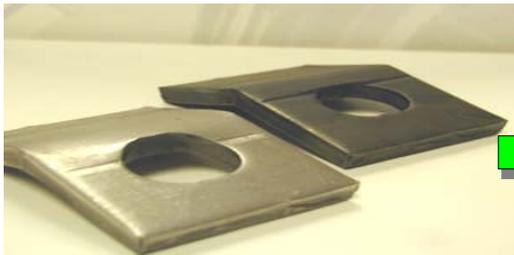
2. Wing bend tool effectiveness by Product type

Reference data

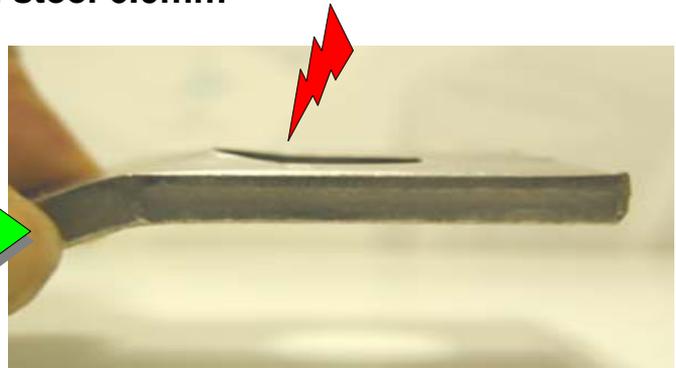
Industries : Construction metal

Current production issue

Product : machine stay hot rolled steel 6.0mm

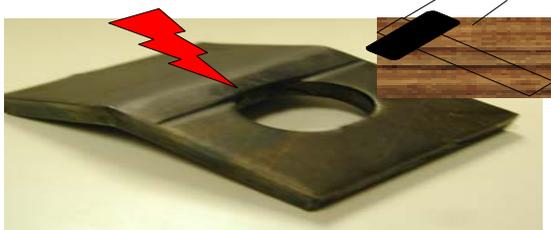


Peeled



Current process

After bending , they repaired peeled area by flame heat and hammering



Angle has changed !

How was the improvement made by Wing bend?

Model WB 650

Demonstrated the same products by customer's machine.

No more peeled out !



Effectiveness

- No repairing work's required!
- No more bending line marks appears and good quality finish !

Now

Bending

Repairing time

New

Bending

2. Wing Bend covers the weakness of standard die

【Features】

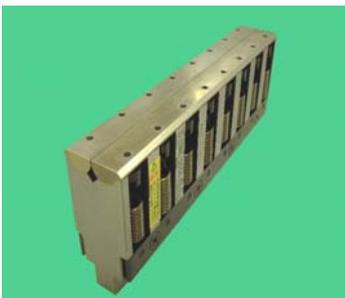
This is the solution die with rotary pieces for common die issues with standard die such as die shoulder bending marks, V opening change with material thickness and shorter flange length.

【Specification】

		WB120-A	WB230-A	WB350-A	WB-650
V opening		V6 model	V10 model	V15 model	V30 model
applicable material thickness	mild steel	0.5-1.2mm	0.5-2.3mm	1.0-3.2mm	1.6-6.0mm
	stainless	0.5-1.0mm	0.5-2.0mm	1.0-3.0mm	1.5-4.5mm
	aluminum	0.5-1.0mm	0.5-2.0mm	1.0-3.0mm	2.0-6.0mm
Min. angle		80°	80°	80°	80°
tool length		50mm/100mm/200mm			
tool allowance		1000kN/m(100 ton/m)			
tool shape		W12xH80	W22xH80	W35xH80	W100xH100

Caution:

- * operate the machine by direct mode for NC control machine
- * Bending elongation may differ from V bending value
Obtain the value by actual bending trial
(For reference data, use “the guidance for bending data”)



Caution:

- * Model WB 650 requires specified rail for operation
- * Hot Rolled plate scale are peeled off



【 5 major advantages 】

Wider application by one tool

