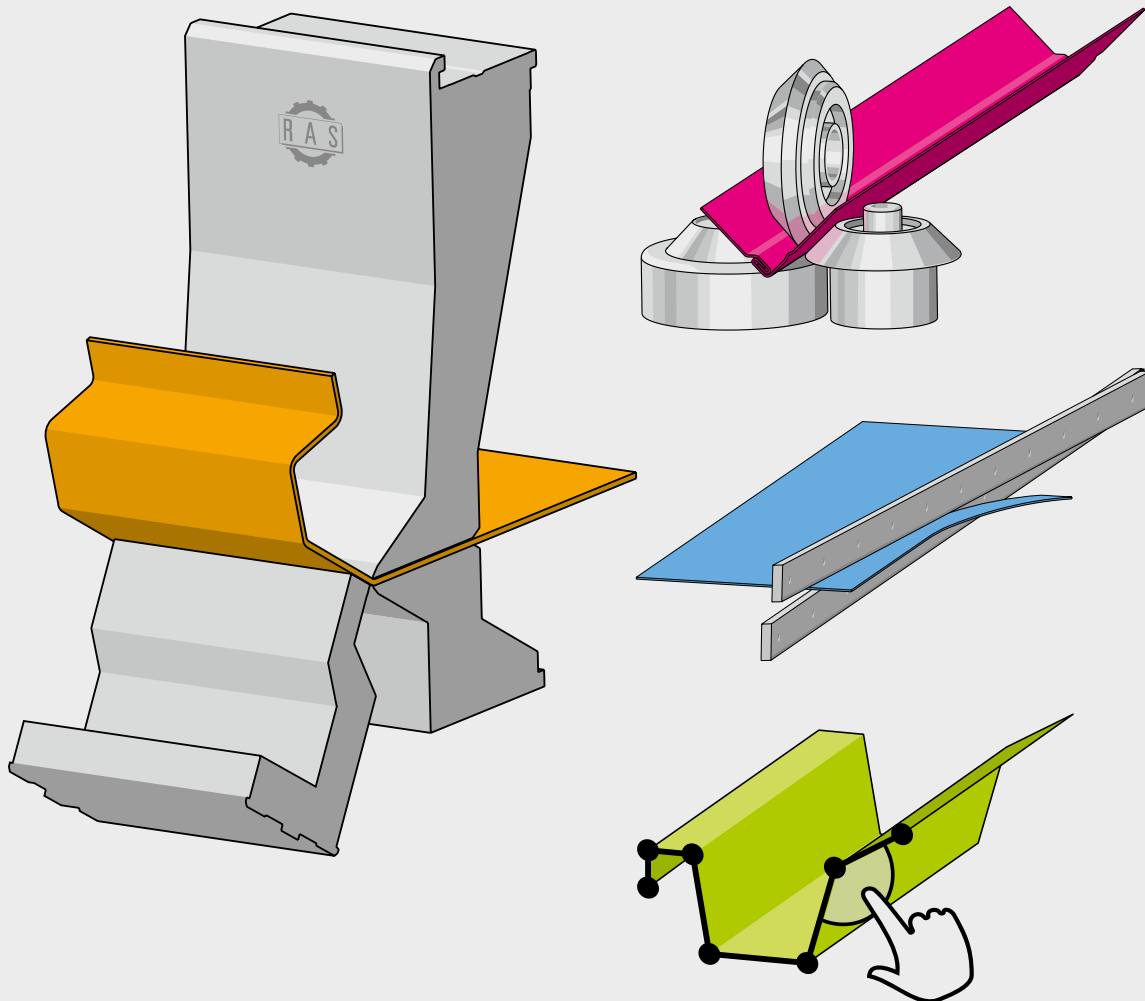# Production Program

CUTTING   BENDING   FORMING   SOFTWARE

Folding

Frequently changing parts and small batch sizes require a universal bending technology. The most common bending techniques are press brake bending and folding. On a press brake the punch moves into the die. The workpiece has to be followed up with effort. Large parts require two or more operators.

A gauging system positions the part to the bend line. The upper beam and lower beam clamp the material. During the bending cycle the folding beam moves up around a pivot point. For machines equipped with bi-directional bending, the folding beam can either move up or down depending on the bending direction.
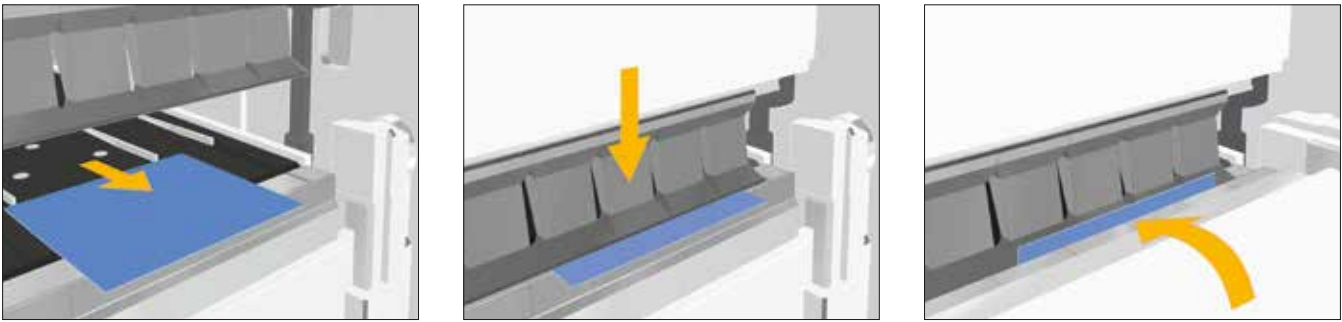

Folding sequence: Position blank - clamp - bend.

Handling

The long flange of the part remains on the support table. As a result, folding is significantly faster, particularly for large parts. Additional bending supports are not needed. At the same time, folding is also safer as the operator is not in contact with the part during clamping and bending

Even large workpieces can be handled by one person. Folding therefore is a very cost efficient bending method. If the bending direction changes on a large panel, folding machines are available that can bend in both directions (up/down).
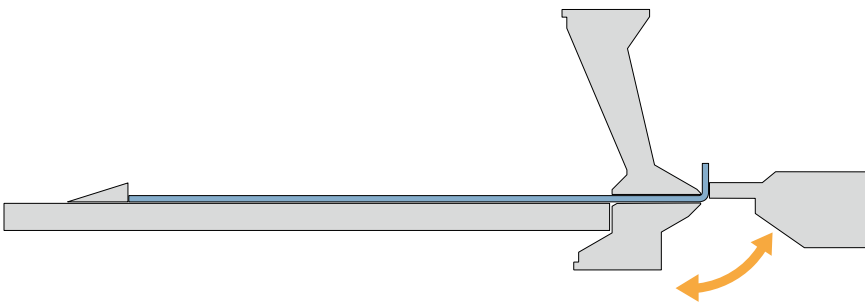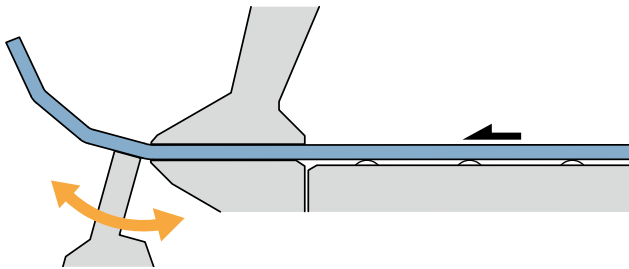

The long flange of the part remains on the support table - the short flanges are bent.

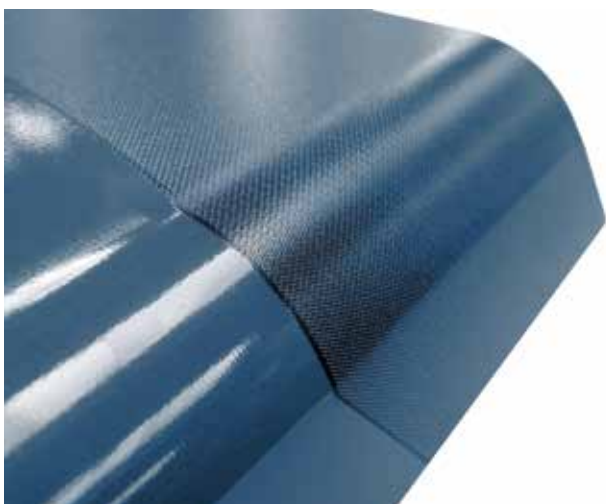Easy handling even of large parts by only one person.

Number of tools / Tool changes

Folding machines can bend any angle with a single tool. The machine automatically adjusts to the sheet thickness. The universal tools reduce the setup times as well as the investment and operating costs. Advanced automated folding machines come with an automatic tool changer.

Sensitive material surfaces

Folding reduces the sliding of tools against material surfaces to a minimum, or completely eliminates it on some machines (Multibend-Center, ProfileCenter). You will find no scratches on the material surface - ideal for stainless steel or coated sheets.
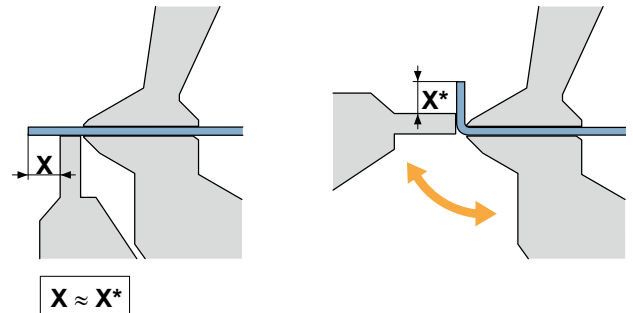
$$X \approx X^*$$

Bending radii

A radius can easily be created using a folder with small bending steps. By using small steps the outside of the radius will be very smooth and the individual steps will not be visible.
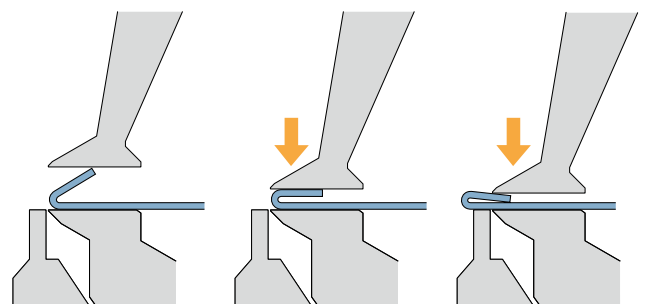
Tool wear

As there are only very slight relative movements between the tool and the material surface, the tooling shows no abrasion wear even after years of use.

Bending hems

Folding does not require special tools for hemming. Open or closed hems can be created.

Influence of sheet thickness tolerances

With folding technology, the folding beam tools touch the outside of the material and move exactly to the programmed angle. This angle reference is only on the outside of the material. As a result, sheet thickness tolerances do not affect the bend angle or the repeatability.
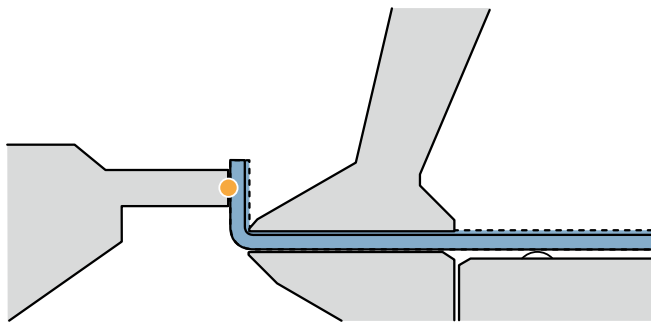
Influence of the gauging method

On a folding machine the entire part is inside the machine. Only a short flange stands out of the upper and lower beam tool. A folder gauges the part instead of the flange. Blanks tolerances disappear in the first flange. The area dimension and the opposite flanges are always accurate.
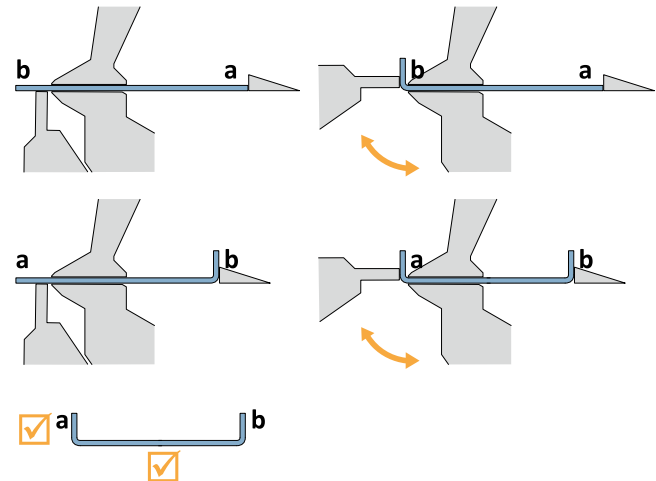
Symbols

Machine bends up.

Machine bends up and down (UpDown technology).

The machine bends open ended profiles.

The machine bends profiles and boxes/panels.

The software programs the part automatically and recommends the best bending strategy with a 5-star ranking. The bending process is shown in a 3D simulation. Bending 4.0 realized!

The software allows the programming of the part assisted by a 3D simulation.

The machine has an automatic tool changer.

Products	Measures	Symbols	Page
Multibend-Center	3060 x 2.0 mm 2560 x 2.5 mm 2160 x 2.5 mm		8
UpDownCenter	4060 x 3.0 mm 3200 x 4.0 mm		14
XLTbend	4060 x 2.5 mm 3200 x 3.0 mm		16
GIGAbend	4060 x 5.0 mm 3200 x 6.0 mm		18
FLEXIbend	4060 x 2.5 mm 3200 x 3.0 mm		20
TURBO2plus	3200 x 2.0 mm 2540 x 2.5 mm		22
MiniBendCenter	50 x 40 x 3.0 mm 600 x 600 x 3.0 mm		24
ProfileCenter	3200 x 2.0 mm		26
XXL-Center	8480 x 1.5 mm 6400 x 1.5 mm 4240 x 1.5 mm		28
XL-Center	3200 x 1.5 mm		30
TURBObend	3150 x 1.5 mm		32

Cutting

Swing beam shears are machine tools that perform straight cuts on sheet metal. On a swing beam shear the upper blade moves in a circular arc. The rigid design of the shear and the extremely low rake angle ensure that blanks as small as 10 to 15 x material thickness remain flat after cutting.
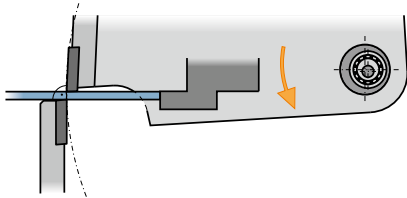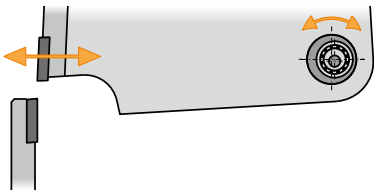
The upper blade penetrates the metal sheet above the lower blade and supplies clean, right-angled cuts with almost no burr.
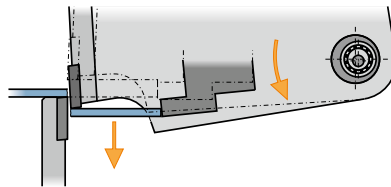
The pivoting movement of the swing beam prevents the blank from jamming between the lower blade and the backstop.
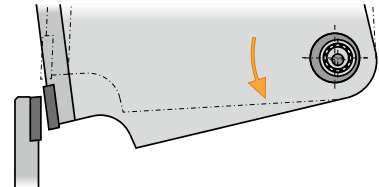
The upper blade moves away from the lower blade after cutting. This keeps the blade sharp for a long time.
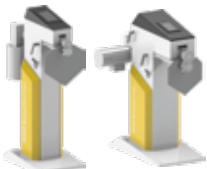
The cutting gap can be easily adjusted by simply turning the cutting gap eccentric.

Products	Measures	Page
POWERcut 2	4040 x 5.0 mm 3190 x 6.3 mm	**34**
PRIMEcut	3100 x 3.0 mm	**36**
SMARTcut	3100 x 2.0 mm 2540 x 2.5 mm	**37**

Our innovative swing beam cutting technology guarantees clean, straight, dimensionally accurate and rightangled cuts.

Forming

|	Products	Measures	Symbols	Page
	Swaging machines EasyFormer	400 x 3.00 mm 255 x 1.75 mm		38
	Swaging machines 11.15 – 11.35	200 x 1.25 mm		40
	Flanging machine 21.20	1.5 mm		41
	Ducting machines DuctZipper-V	140² x 1.25 mm 100² x 1.00 mm		42
	Ducting machines DuctZipper-L	140² x 1.25 mm 100² x 1.00 mm		43
	Roll Forming Machines SpeedySeamer	1.5 mm		44
	Rounding machine VENTIrounder	1500 x 1.25 mm		45
	Seam Closing Machine 25.15	1520 x 0.88 mm		46

Multibend-Center
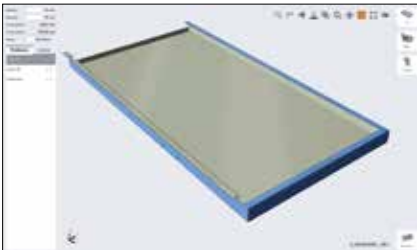
Office software with one-click programming starting from a STEP, DXF, GEO file of the part.
No expert knowledge required.
Fast, safe, precise.
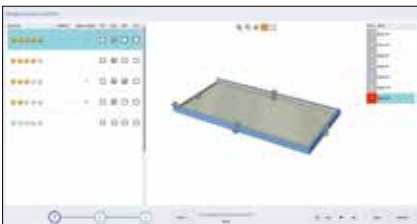
The best bending sequences are shown according to the highest 5-star ranking.
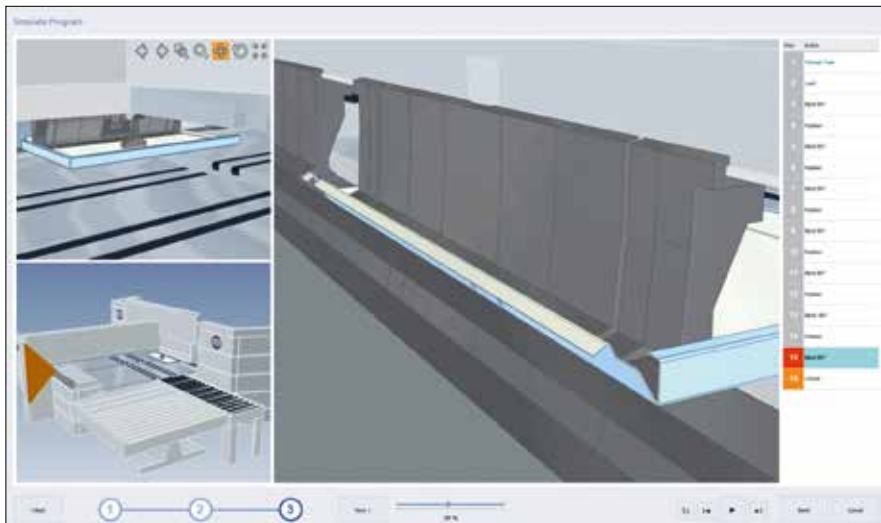
The 3D simulation shows the folding sequence and possible collisions.
New products can already be evaluated during the design process.

The Multibend-Center is characterized by speed and high productivity levels.

Fully automatic bending sequences: positioning, rotation, bending, and tool change.

Scratch-free bending of sensitive materials. No tool wear.

Four-sided boxes can be as tall as 203 mm.

Due to highest levels of precision and repeatability, the parts are suitable for laser welding.
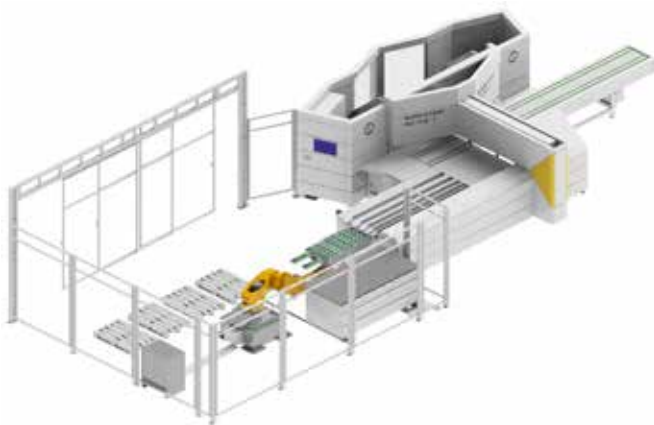
Loading

In addition to manual loading and unloading, a variety of options for automatic blank loading and unloading of bent parts is available. Depending on the requested degree of automation and the manufacturing conditions, the handling systems on the loading and unloading side can be individually configured.
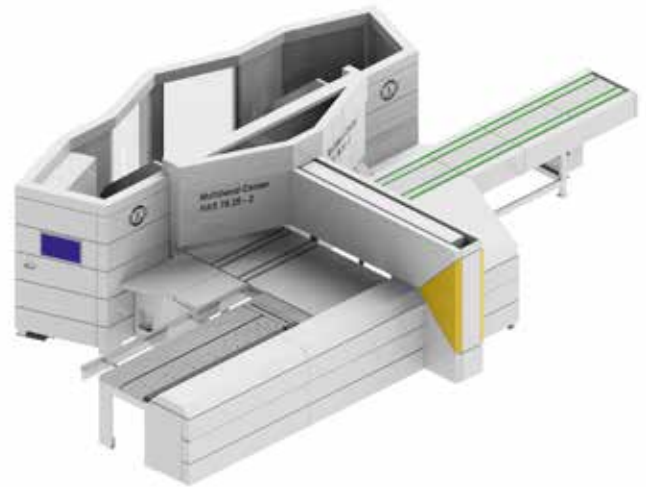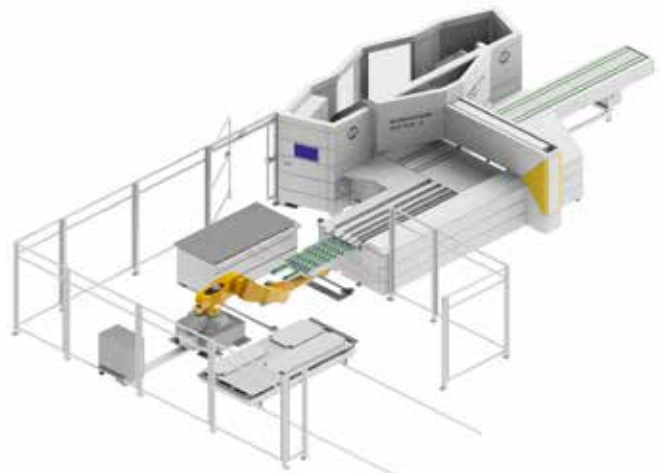

Manual Loading
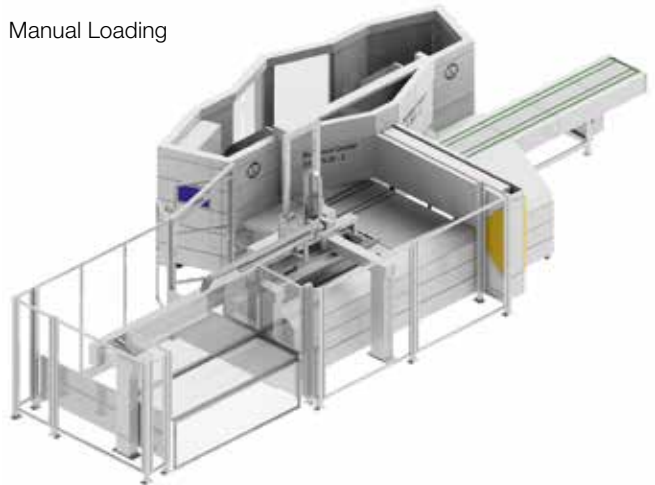
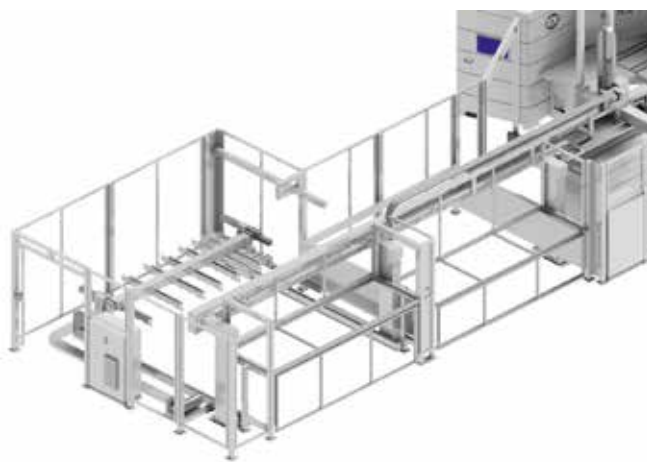Multibend-Center with single station gantry loader (optional two station gantry loader).

Multibend-Center with robot loading. Provision of the blanks on Euro-pallets. The robot can also flip the blanks. Intelligent robot: No programming or teaching required.
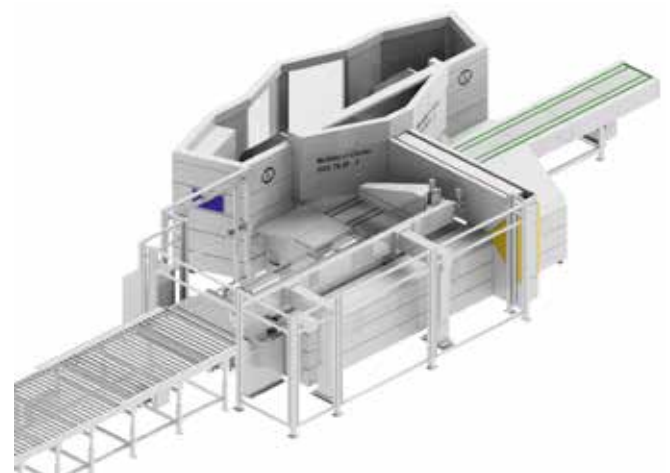

Multibend-Center with robot loading. Blanks supplied from a storage system. The robot can also flip the blanks. Intelligent robot: No programming or teaching required.
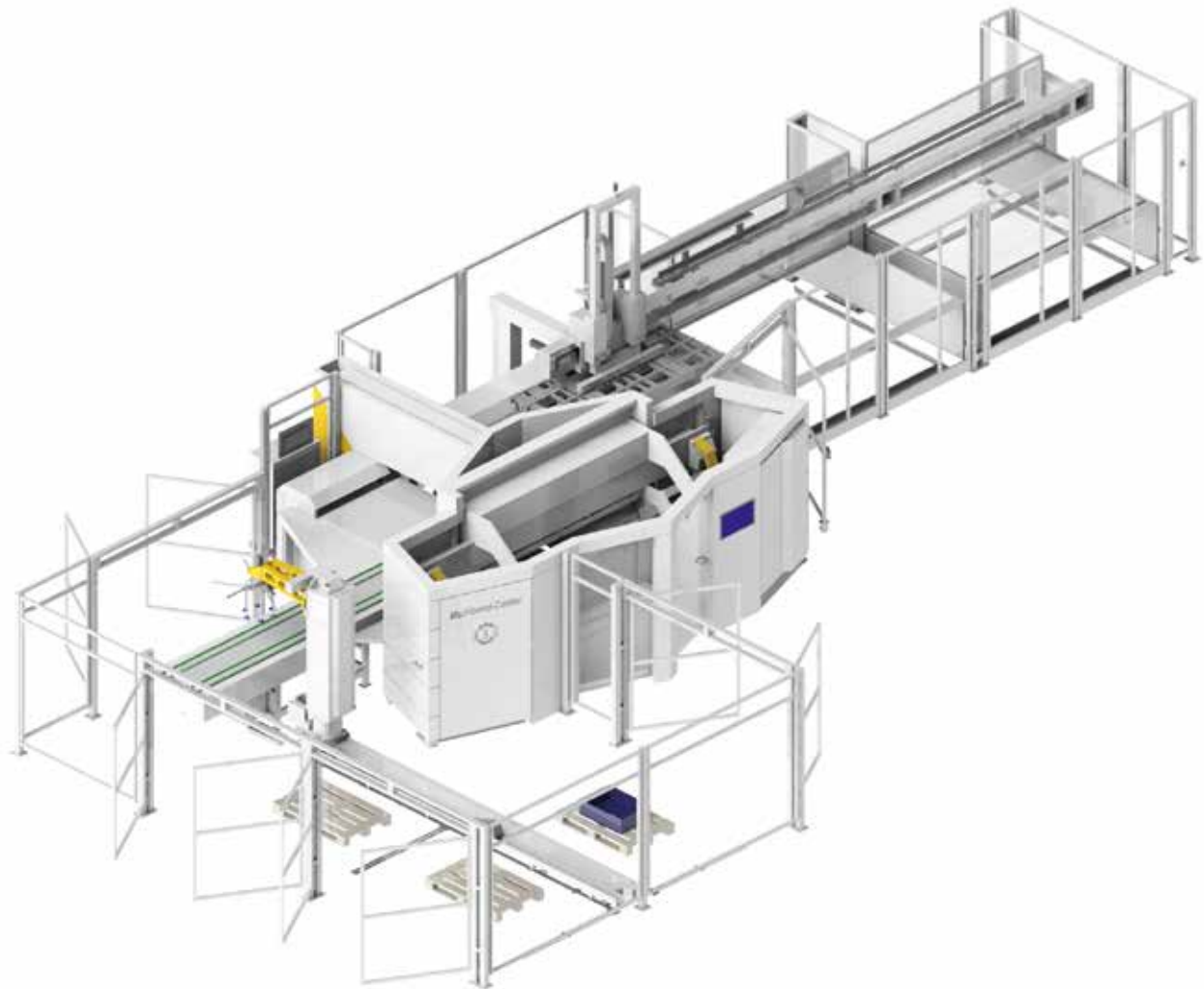
Multibend-Center with two station gantry loader and stacking with 3-Station Palletizer
(max 11 stacks) or 5-Station Palletizer (max 15 stacks)

Two station gantry loader with SheetFlipper for blank rotation
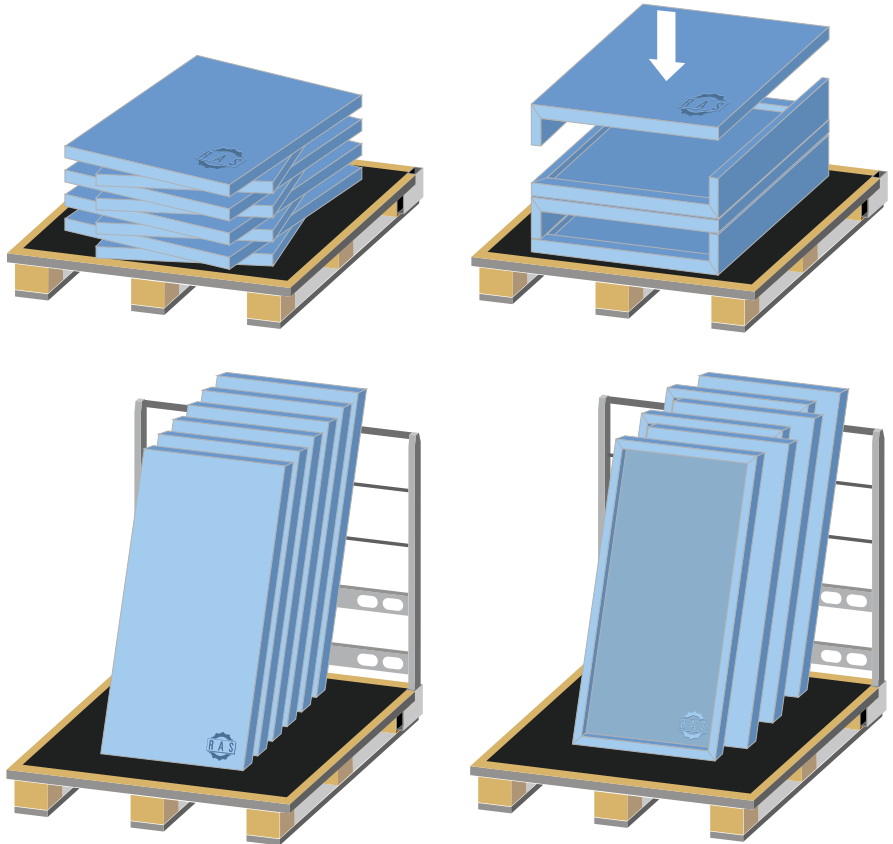before loading.

Multibend-Center with blank supply via roller table and loading
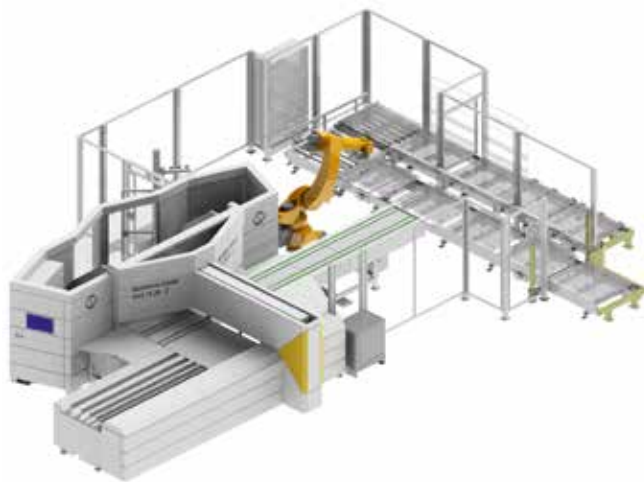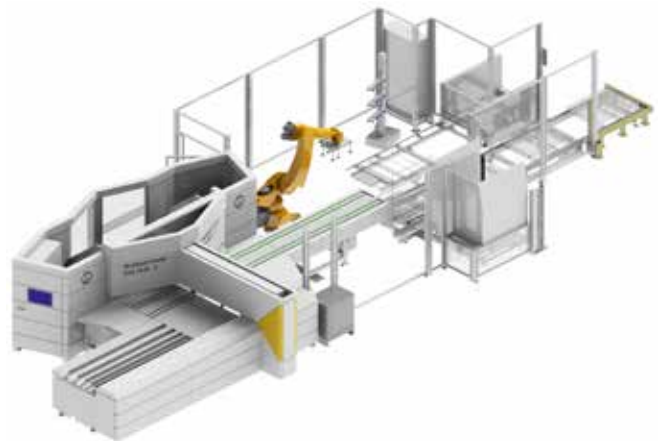by MiniFeeder.

Unloading

Rotator system for finished parts.

Samples of stacks created by the unloading robot

Multibend-Center with intelligent unloading robot. Optional rotation of finished parts before stacking. U-shape pallet system provides pallets.

Multibend-Center with intelligent unloading robot. Optional rotation of finished parts before stacking. Pallets provided by pallet magazine. Back panels for vertical stacking provided by back panel magazine.

| Technical data	Bending length max.	Sheet thickness max.	Box height max.
Multibend-Center RAS 79.31-2	3060 mm	2.0 mm	203 mm
Multibend-Center RAS 79.26-2	2560 mm	2.0 (2.5) mm	203 mm
Multibend-Center RAS 79.22-2	2160 mm	2.0 (2.5) mm	203 mm

Multibend-Center ECO

Are you looking for a cost-effective entry-level solution for automatic bending of panels and boxes?
At the same time you want to use all features of a high-end panel bender? These two characteristics initially are not compatible, but RAS has combined them in a best value package:
The Multibend-Center ECO.

Technical data	Bending length max.	Sheet thickness max.	Box height max.
Multibend-Center RAS 79.31-2 ECO	3060 mm	2.0 mm	203 mm
Multibend-Center RAS 79.26-2 ECO	2560 mm	2.0 (2.5) mm	203 mm
Multibend-Center RAS 79.22-2 ECO	2160 mm	2.0 (2.5) mm	203 mm

UpDownCenter

STEP file import of a part
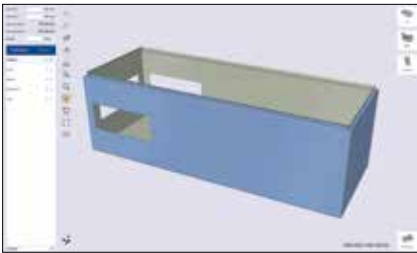
The RAS UpDownCenter-2 bends materials up to 4 mm thick, up to 4060 mm long or 400 mm high. The one-click part programming software, the automatic tool changer, the UpDownTools in the folding beam and a extremely flexible suction cup plate positioning system adds maximum efficiency. Folding technology innovations that result in precision parts.
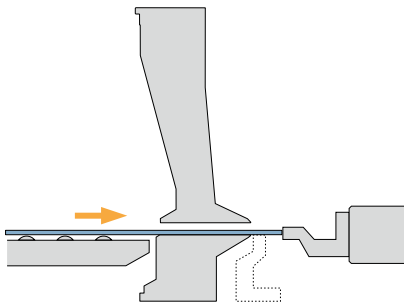

The 3D simulation shows the folding sequence and possible collisions. New products can be evaluated during the design process.
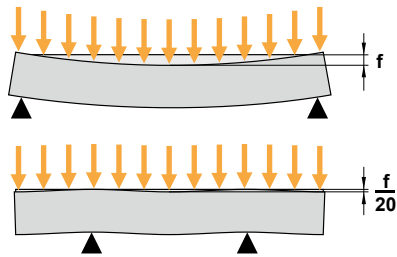

Upper beam tools as tall as 400 mm

Extended flexibility, as the folding beam can be used as a gauging stop.

The automatic tool changer for quick tool set-ups extends production times.

Maximum bending accuracy due to the patented beam-in-beam folding beam design.

The automatic tool changer for quick tool set-ups extends production times.

UpDownTools in down position for interrupted bend lines.

Upper beam tools for boxes up to 400 mm tall.

Suction cups for small parts allow safe positioning of small workpieces


High flexibility in handling due to front suction cups and small part suction cups.

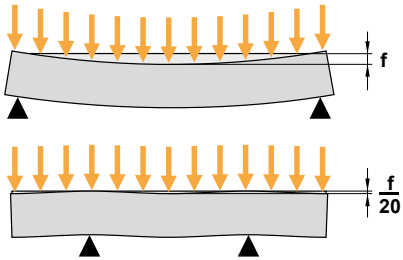| Technical data	Bending length max.	Sheet thickness max.	Box height max.
UpDownCenter RAS 78.43-2/40-2	4060 mm	3.0 mm	400 mm
UpDownCenter RAS 78.33-2/30-2	3200 mm	4.0 mm	400 mm

XLTbend
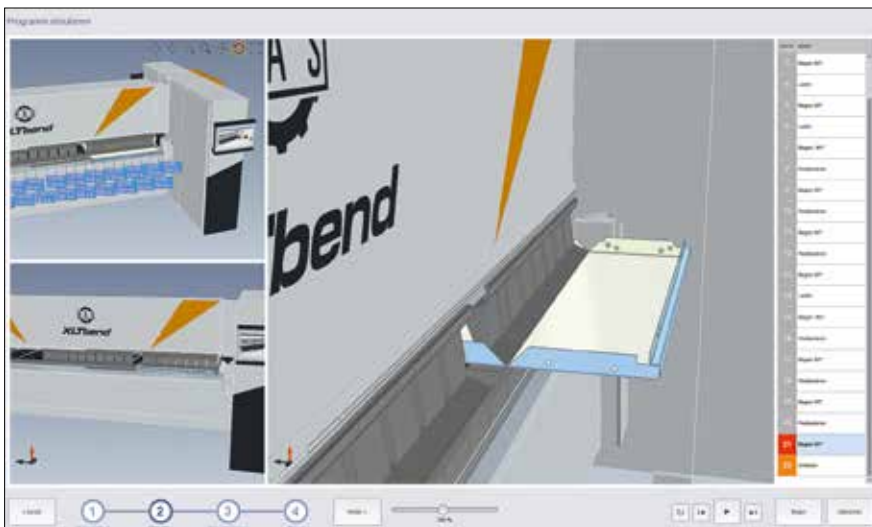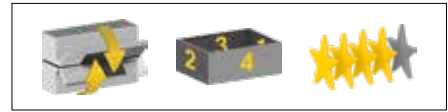
The 3D simulation shows the folding sequence and possible collisions. New products can be evaluated during the design process.
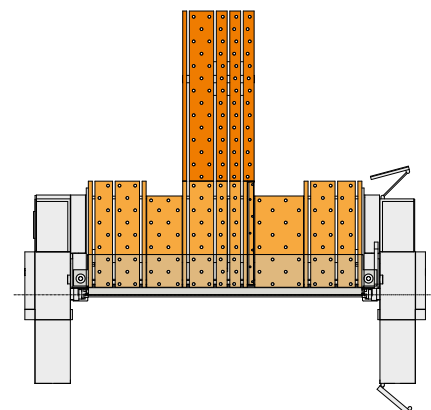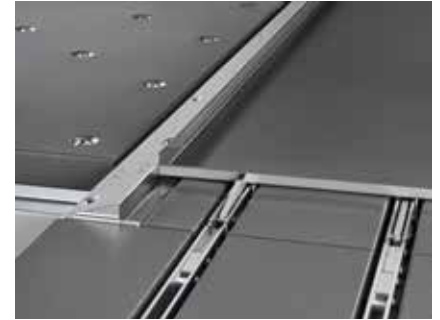

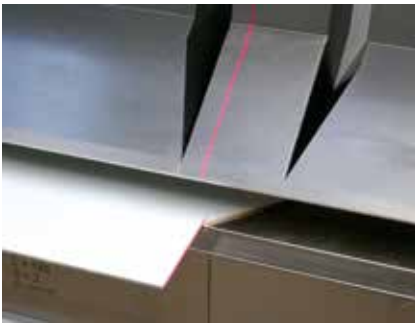Machine with rectangular or extended T-shape gauging system.

Maximum bending accuracy due to the patented beam-in-beam folding beam design.
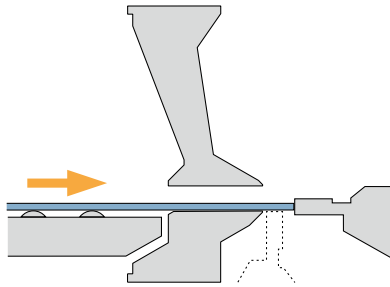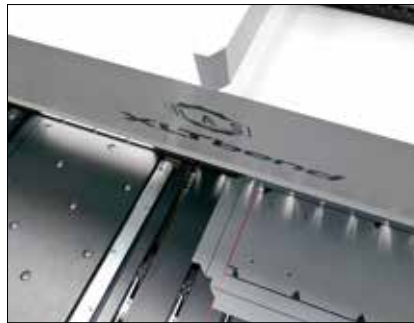

Extended flexibility, as the folding beam can be used as a gauging stop.

Accurate alignment of long and narrow parts with the active squaring arm.

When working from the rear, the ViN also shows the blank loading position on the gauging system.

The laser beam of the Virtual Navigator (ViN) shows the exact part loading position.
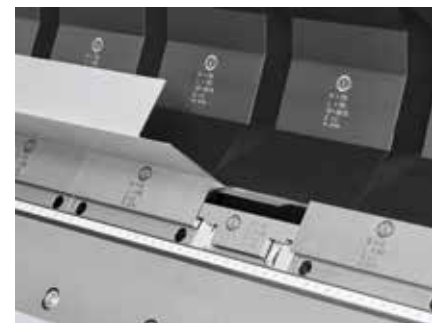

The SnapTool corner tools automatically retract from parts with side flanges.

The suction cups of the hybrid gauging system hold the part through a sequence of bends to the stop fingers.

If the outside edges of the blank are not straight, individual stop fingers can be deactivated.

UpDownTools bending of interrupted bend lines without the need of a second tool setup.

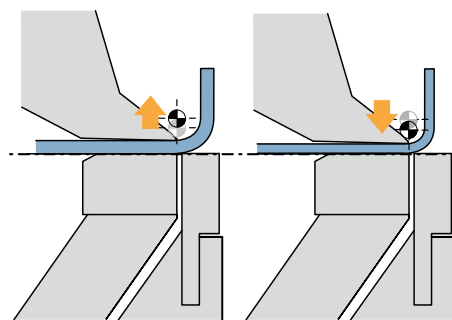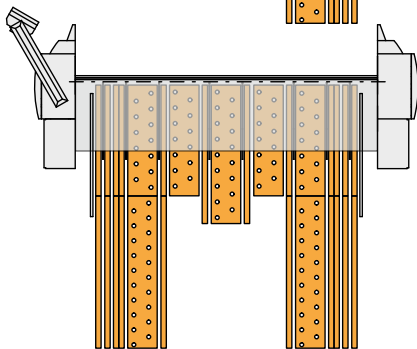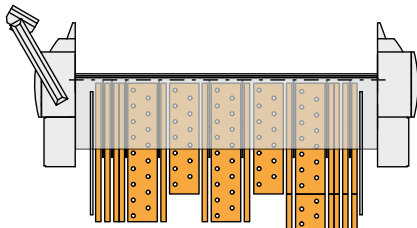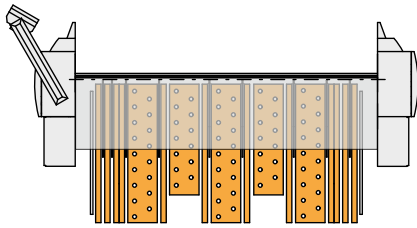| Technical data	Bending length max.	Sheet thickness max.
XLTbend RAS 71.40	4060 mm	2.5 mm
XLTbend RAS 71.30	3200 mm	3.0 mm

GIGAbend

Bending radii without special tools.

Tall upper beam tools used for deep boxes (500 mm opening height).

Automatic adjustment of machine to sheet thickness and bend radius.

Gauging system options: rectangular, J, and U shape.

Part design flexibility due to slim but rigid tools.

Upper beam tool with large front free space.

Optional digital display for folding beam adjustment.

The PowerBooster clamps the blanks with 120 tons of pressure to guarantee straight bends.

During the folding sequence the sheet rests on the machine table. No need to lift the part.
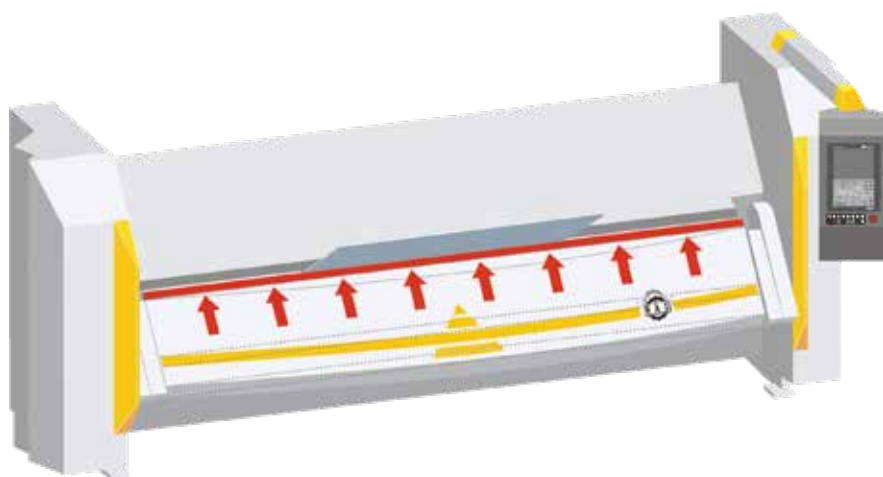

Quick tool set-ups due to the automatic tool clamping system.

The PowerBoosters offer impressive performance when hems need to be closed.

Technical data	Bending length max.	Sheet thickness max.
GIGAbend RAS 76.40	4060 mm	5.0 mm
GIGAbend RAS 76.30	3200 mm	6.0 mm

FLEXIbend

Intelligent crowning system measures the beam deflection and automatically sets the crowning.
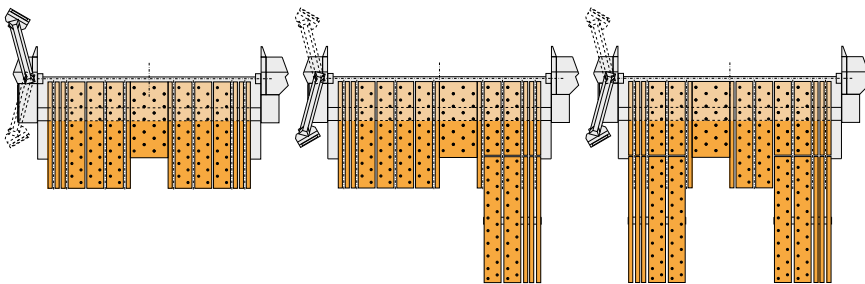
Bend tabs with segmented folding beam tools.

Part design flexibility due to slim but rigid folding beam tools.
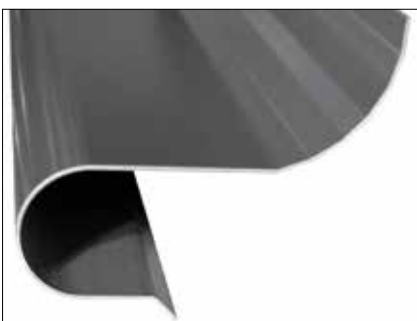

Optional digital display for the folding and lower beam adjustment.

In addition to the rectangular gauging system, optional „J" and „U" shapes can be configured.

Parts aligned with the squaring arm.

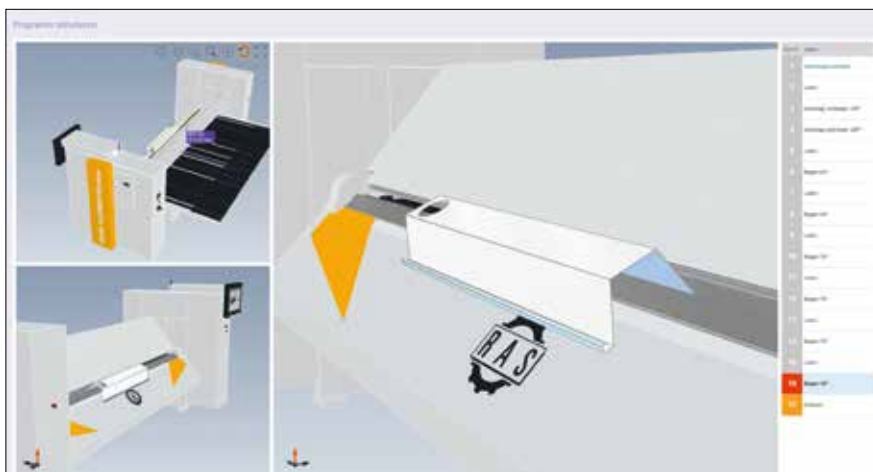| Technical data	Bending length max.	Sheet thickness max.
FLEXIbend RAS 73.40	4060 mm	2.5 mm
FLEXIbend RAS 73.30	3200 mm	3.0 mm

TURBO2plus

Input of part geometry by drawing, table values input or STEP / DXF file import.

The best bending sequence gets the highest ranking.

The 3D simulation visualizes the bending sequence and shows when the part needs to be flipped or rotated.

Tools with radius for bending aluminum.

Segmented upper beam tools with front free space

Segmented upper beam tools with rear free space
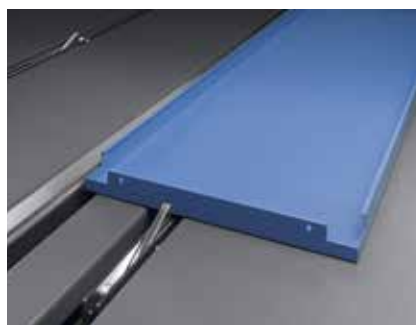

Tools with quick clamping system

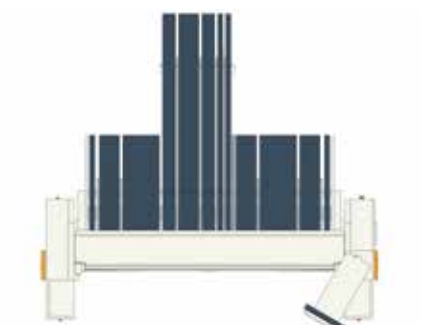Precise blank positioning by solid stop fingers.

A laser automatically recognizes the exact tool height.

Setting the CrownTool..
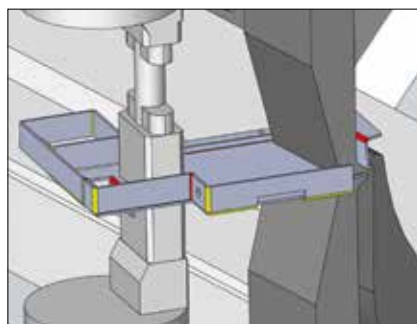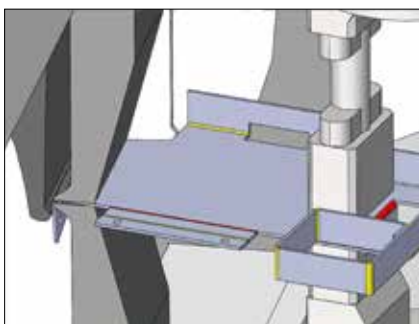(especially for step bending of radii).

Long and slim parts aligned with the squaring arm.

Center Gauging system extended in the middle (T-shape) for best bending results on large panels.

Technical data	Bending length max.	Sheet thickness max.
TURBO2plus RAS 62.30-2	3200 mm	2.0 mm
TURBO2plus RAS 62.25-2	2540 mm	2.5 mm

MiniBendCenter

Simple to use Office software starts from a STEP file of the part with 3D visualization of the bending processes.

Fully automatic bending of even complex parts up to 3 mm steel sheet.

The RAS MiniBendCenter is the world's only folding center for small parts.
The blanks are automatically loaded, aligned and squared. Tool setup is automatic.

The automatic tool setup allows for quick change-over between parts and the production of small batch sizes.

Robotic loading offers maximum flexibility. Blanks can be loaded from a bulk material box or from stacks.

Measuring the parts by a laser scanner.

Several bending stations can be setup along the length of the machine. Complex parts can be completed in a single run.

Highest levels of precision and repeatability

Dedicated unloading of the finished parts depending on floor space conditions, material flow, and sensitivity of the parts.
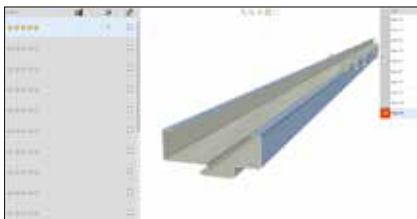
Unloading of finished parts into bulk material containers.

Technical data	Sheet thickness max.	Blank size min.	Blank size max.
MiniBendCenter RAS 79.05	3.0 mm	50 x 40 mm	600 x 600 mm

ProfileCenter
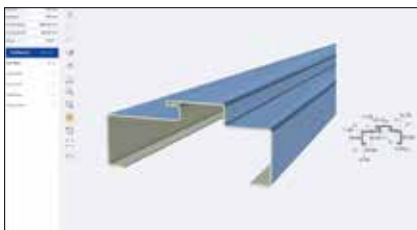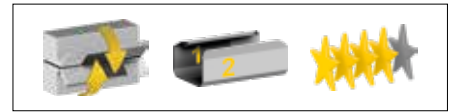
Office software with one-click programming starting from a STEP, DXF, GEO file of the part. No expert knowledge required. Fast, safe, precise.

The best bending sequences are shown according to the highest 5-star ranking.

The 3D simulation shows the folding sequence and possible collisions. New products can already be evaluated during the design process.
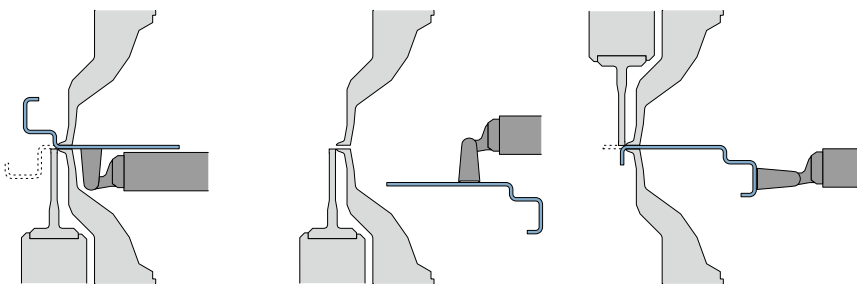
Secured bending accuracy due to automatic alignment of the supplied blanks.

Complex part geometries can be bent due to the large free space around the tools.
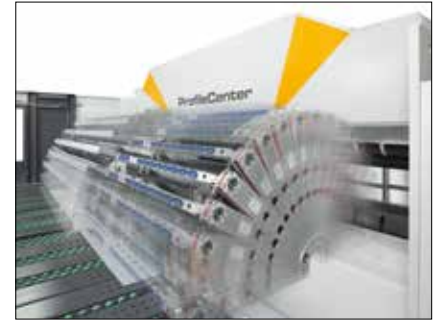
Automatic bending with fast cycle times. The workpiece does not have to be positioned at the stops during bending process.

Automatic bending of complex profiles without operator intervention. The unique FlexGripper handling system automatically changes its gripping position when needed.
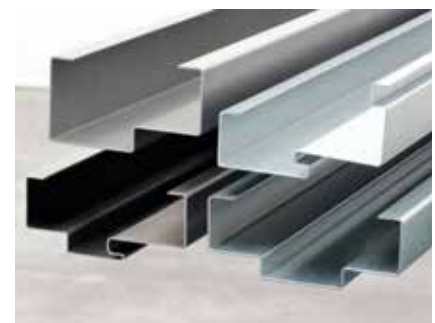

Scratch-free bending of pre-coated or galvanized sheets as well as of stainless steel as the folding beam tool rolls away with the flange.
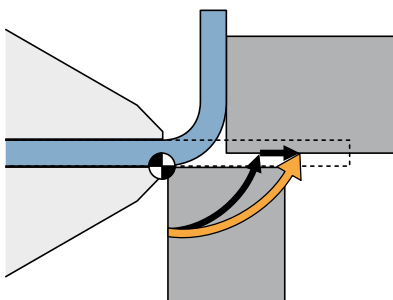
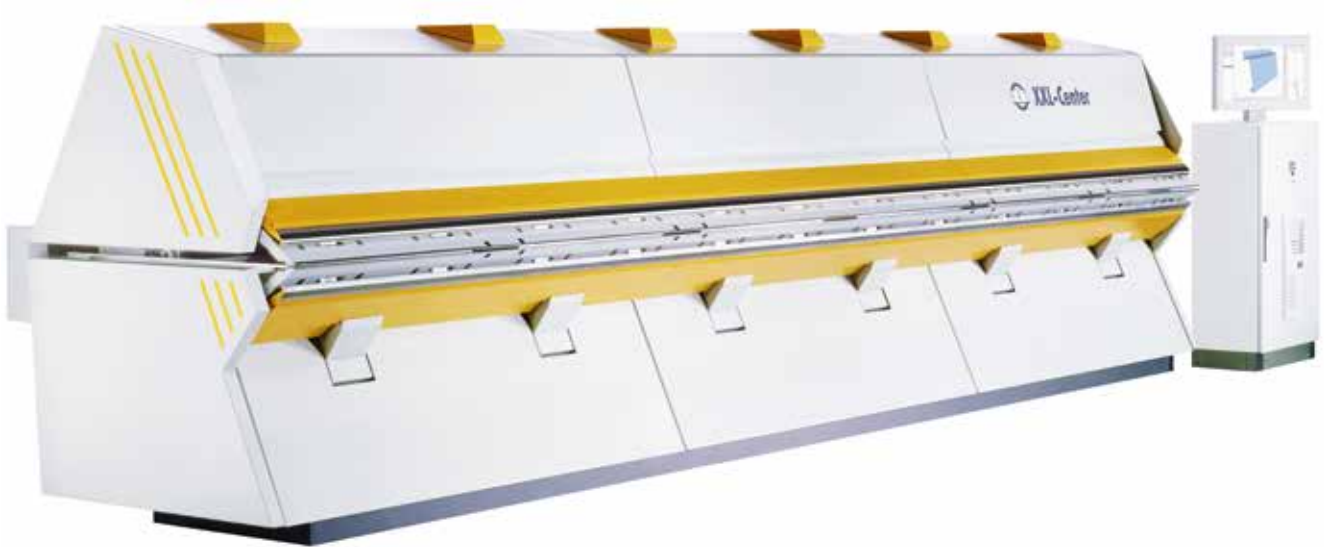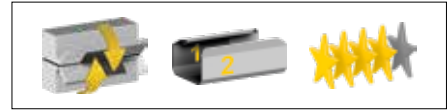Folding beam movement for scratchfree bending.

Precise flange dimensions, angles and straightness of the profiles.

Batch size 1 production is possible as the machine automatically adapts to changing sheet thicknesses and material types.

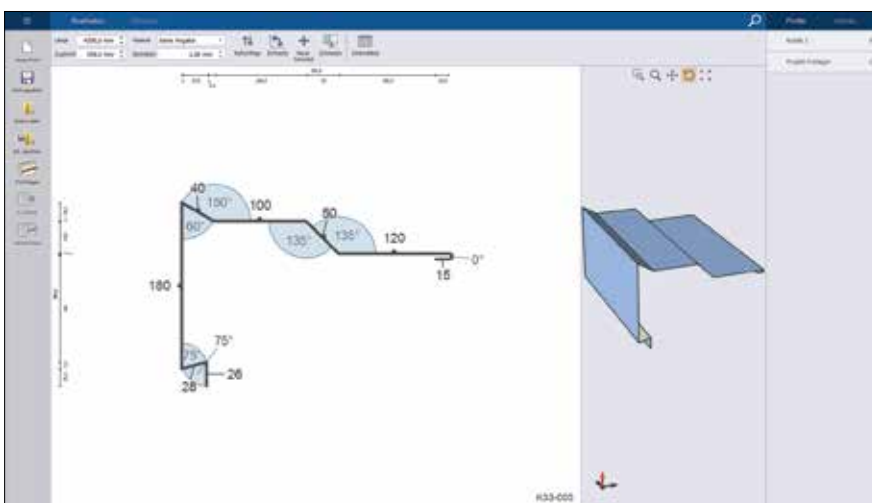| Technical data	Sheet thickness max.	Blank size min.	Blank size max.
ProfileCenter RAS 79.30	2.0 mm	100 x 600 mm	700 x 3200 mm

XXL-Center

If several bending sequences are possible, the software proposes the best option with a 5-star ranking.
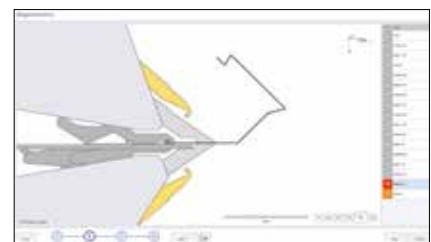
Drawing of a profile on the touchscreen monitor. Automatic programming of the bending sequence with just one mouse click. No expert knowledge required. New parts can be tested for feasibility in the office using the Office programming software.

2D or 3D simulation of the bending sequences and visualization of possible collisions.

Retractable table sections for easy blank loading and flipping.
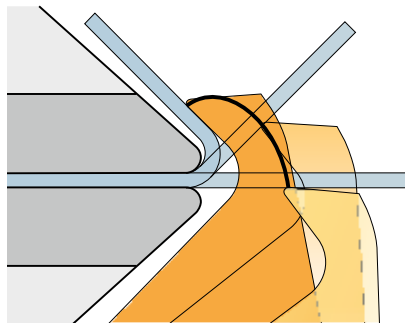
Scratch-free bending of pre-coated sheets up to 1.5 mm material thickness.

Many parts geometries can be bent due to a 300 degree free space in front of the folding beam (patented).

300°

CutModule for trimming wide blanks. Automatic sequence: cutting and bending.

Secured bending accuracy due to automatic alignment of the blanks.

Grippers position the part. This ensures precise flange dimensions and fast bending sequences.
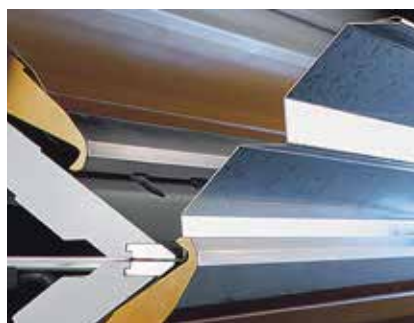
No part rotation required since the machine bends up and down. High productivity due to fast bending cycles.

Technical data	Bending length max.	Sheet thickness max.	Backstop
XXL-Center RAS 75.08-2	8480 mm	1.5 mm	12 - 750 mm
XXL-Center RAS 75.06-2	6400 mm	1.5 mm	12 - 750 mm
XXL-Center RAS 75.04-2	4240 mm	1.5 mm	12 - 750 mm

XL-Center

Drawing of a profile on the touchscreen monitor. Automatic programming of the bending sequence with just one mouse click. No expert knowledge required. New profiles can be evaluated in the office.

If several bending sequences are possible, the software proposes the best option with a 5-star ranking.

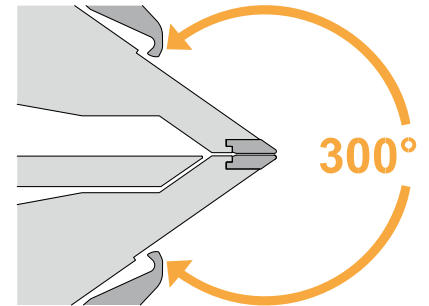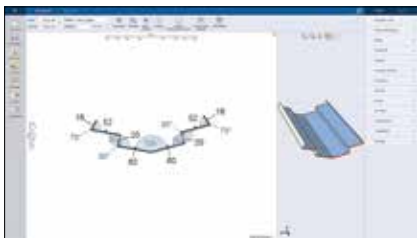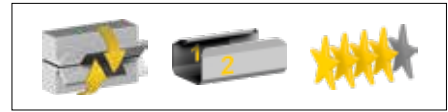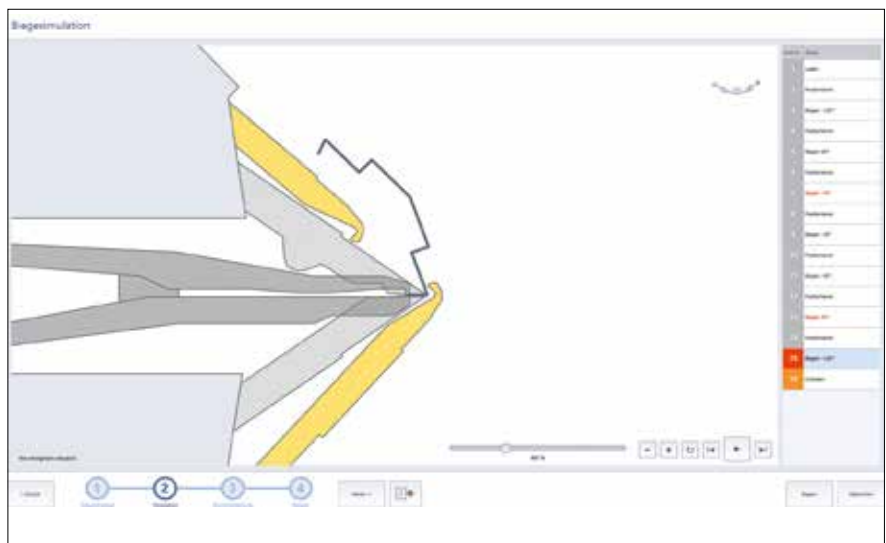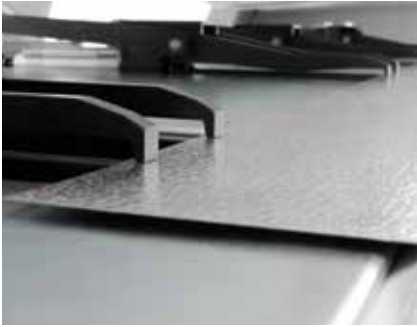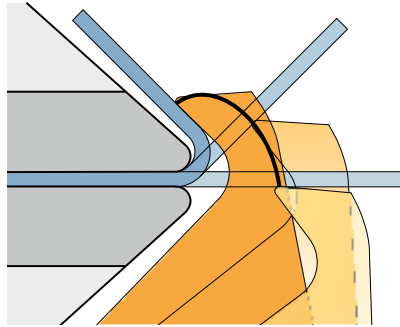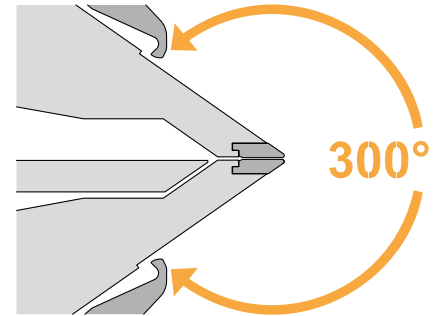2D or 3D simulation of the bending sequences and visualization of possible collisions.

Grippers position the part.
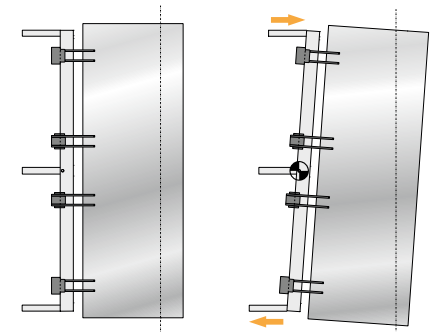This ensures precise flange dimensions and fast bending sequences.

Scratch-free bending of pre-coated sheets up to 1.5 mm material thickness.

Many parts geometries can be bent due to a 300 degree free space in front of the folding beam (patented).

No part rotation required since the machine bends up and down. High productivity due to fast bending cycles.
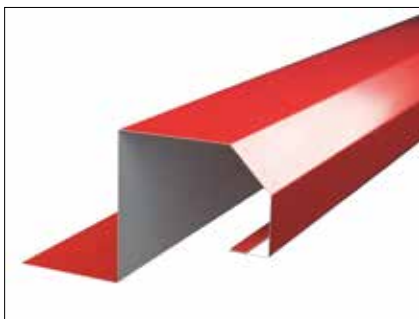

The gauging system can produce automatically tapered parts.

No programming required for accurate and perfectly interlocking profiles (tapered parts)

Technical data	Bending length max.	Sheet thickness max.	Backstop
XL-Center RAS 63.30	3200 mm	1.5 mm	6.5 - 750 mm

TURBObend
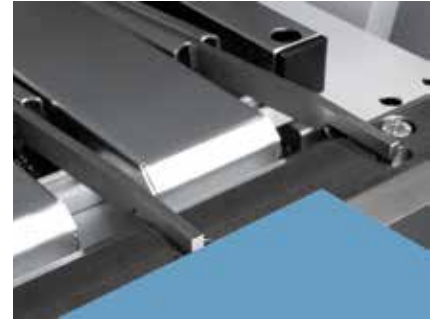
Automatic folding beam adjustment for thin and thick materials.

Stop finger at minimum stop dimension
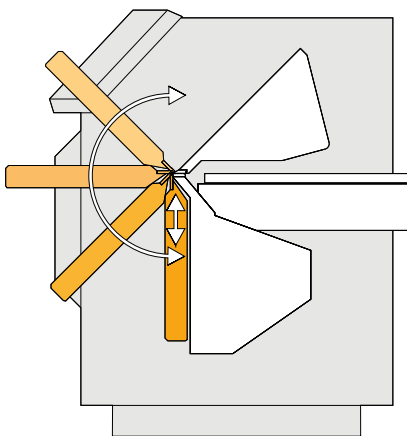
Rear of the TURBObend with rectangular gauging system.
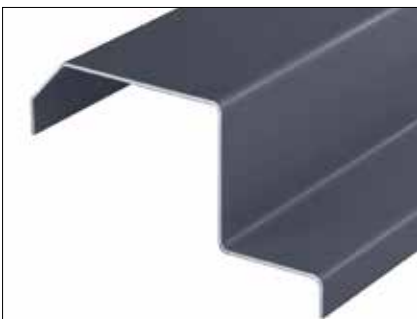
Technical data	Bending length max.	Sheet thickness max.	Backstop
TURBObend RAS 61.31	3150 mm	1.5 mm	6.0 - 1000 mm

POWERcut 2

Simple and clear menus
on the 15" touch monitor.

The sheet support system guides even thin materials exactly to the CNC backstop.
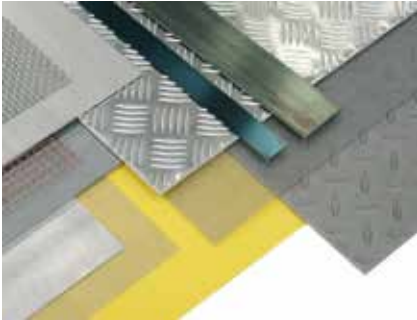
The POWERcut2 swing beam shears cover a wide range of materials.

Front stops (available also with a precision scale) allow an accurate part positioning.

Deep finger pockets for best material utilization.

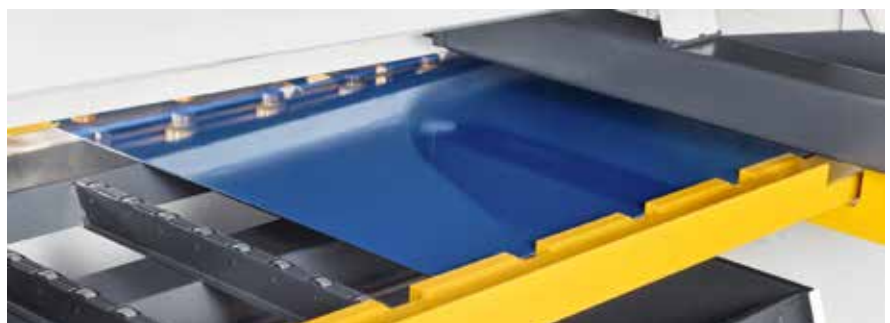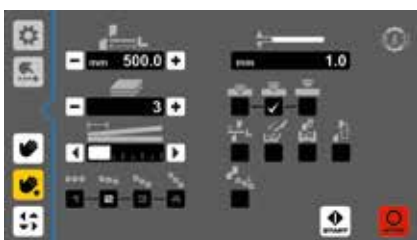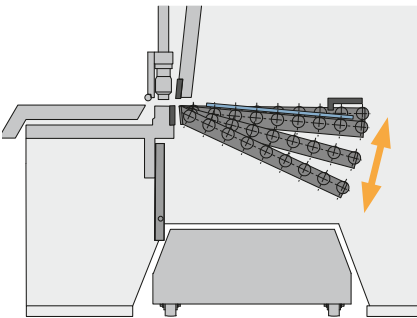After the cut, the sheet support system can move into four different part delivery positions.down quietly and gently.
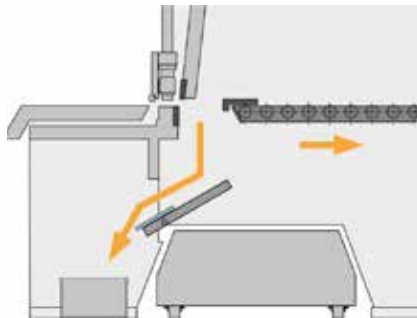
Small parts up to 200 x 500 mm can be delivered in a container in front of the machine.
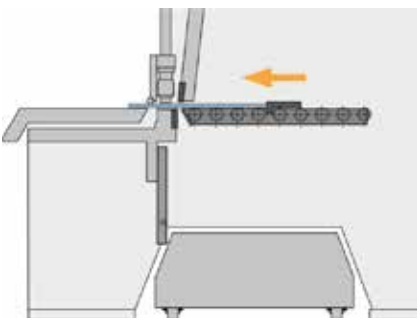
Huge time saving as cut pieces can be returned to the operator.
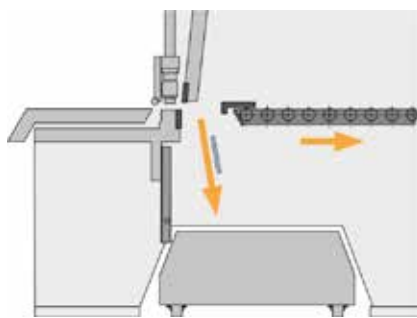
Trim cuts fall into the large-volume scrap container. It can be pulled out of the machine to the side or to the rear.

Technical data	Cutting length max.	Sheet thickness max.	Gauging depth
POWERcut 2 RAS 86.43-2	4040 mm	5.0 mm	5 - 1000 (1500) mm
POWERcut 2 RAS 86.33-2	3190 mm	6.3 mm	5 - 1000 (1500) mm

PRIMEcut
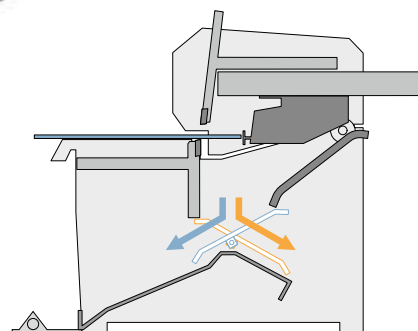
Sorting the cut pieces to the front (up to 750 mm) and to the rear (up to 250 mm).

Control with touch screen monitor.

Lever for the cutting gap adjustment on the PRIMEcut.
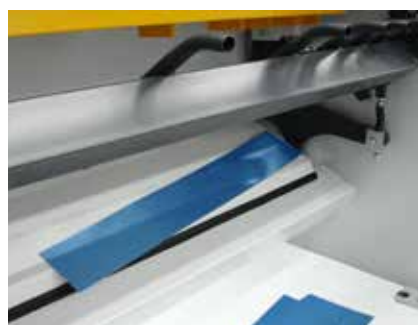
Parts chute for cut piece delivery to the rear.

SMARTcut

The pop-up hold-down (right) prevents thin and very sensitive sheets from being lifted and bent during the upstroke of the swing beam.
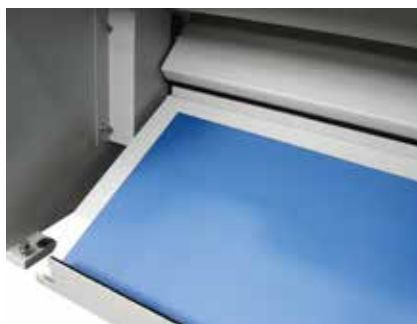
Parts chute for cut piece delivery to the front.

The foot lever switches the parts chute direction.

Convenient blank alignment with the LED cutting line illumination.

Technical data	Cutting length max.	Sheet thickness max.	Gauging depth
PRIMEcut RAS 53.30	3100 mm	3.0 mm	5 - 750 mm
SMARTcut RAS 52.30	3100 mm	2.0 mm	5 - 750 mm
SMARTcut RAS 52.25	2540 mm	2.5 mm	5 - 750 mm

EasyFormer
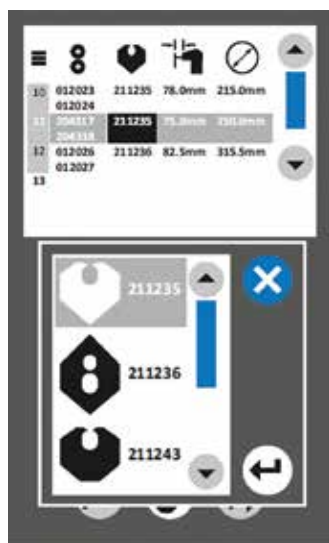
Ideal user-friendliness with the 7" touch control. Programs can be saved with additional information.

„Teach" function and „Automatic" function

Flanging wheels FL: Flanging without swiveling the part.

Crimping bead

Double seaming wheels

Swaging wheels for insulation work

Screw-in seam

Hose seam for hydraulic pipes

7" Touch control

Stop plate for insulation pipes

UnLock function opens the wheels immediately in an emergency.

Technical data	Sheet thickness max.	Wheel center distance	Working depth max.
EasyFormer RAS 12.65-3	3.0 mm	100 mm	400 mm
EasyFormer RAS 12.35-3	1.75 mm	63 mm	255 mm

RAS 11.35
RAS 11.15

9 pairs of wheels included-

Swaging wheels

Technical data	Sheet thickness max.	Wheel center distance	Working depth max.
RAS 11.35 (Motor)	1.25 mm	50 mm	200 mm
RAS 11.15 (Manual)	1.25 mm	50 mm	200 mm

RAS 21.20

Top attachment for button punch
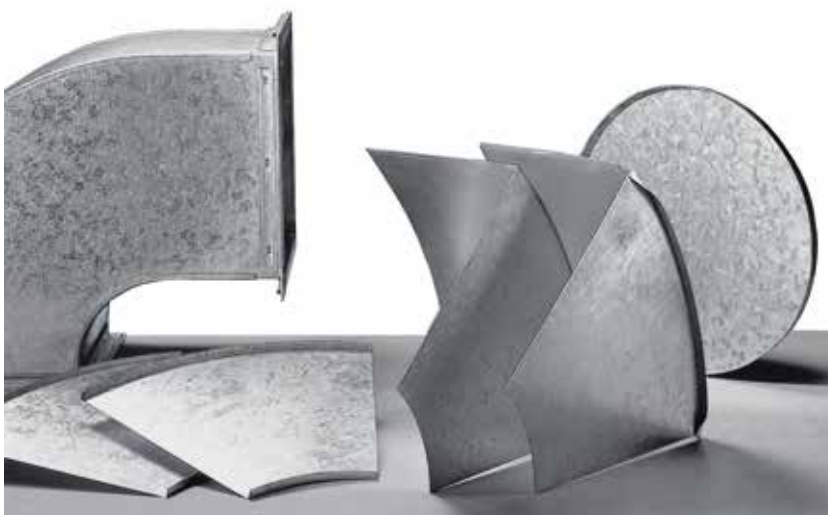
Production of edge flanges for air duct components.

Automatic sheet guide system

Technical data	Sheet thickness max.	Fl. height (min. - max.)	Speed
RAS 21.20	1.5 mm	6 - 15 mm	0 - 9.4 m/min

DuctZipper V-Form

Air duct with a single seam joint

Air duct with two seam joints

Air duct

DuctZipper with SealJet for maximum tightness and energy efficiency.

Duct seam inserted with gel sealant for the highest tightness requirements.

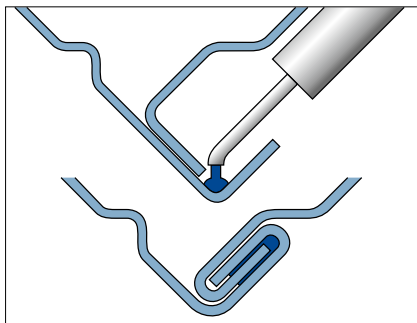Autopilot and reinforced seaming bar on the RAS 20.12 DuctZipper.

DuctZipper
L-Form

The DuctZipper in L-shape is specifically designed for large ducts. On the DuctZipper-L the working position is rotated by 45 degrees. The horizontal flange of the duct rests on the table while the vertical flange is directed straight up. Gripping grooves in the vertical wall let the operator easily hold and guide the duct while passing it through the machine.

Easily accessible forming rolls for cleaning and maintenance.

Improved seaming accuracy also results in a reduced distortion of the duct cross-section.
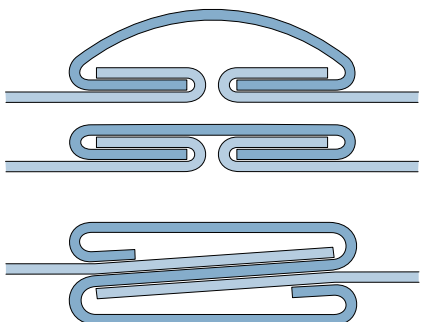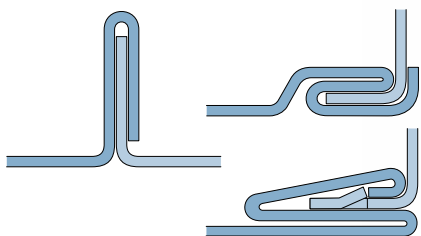

Working speed doubled through quicker loading of following part.

Even very large ducts can be produced with only two operators.

Technical data	Sheet thickness max.	Duct cross-sec. min.	Speed ca.
DuctZipper RAS 20.12	1.0 - 1.25 mm	140 x 140 mm	15 m/min.
DuctZipper RAS 20.10	0.5 - 1.00 mm	100 x 100 mm	15 m/min.

SpeedySeamer

Standing seam, Pittsburgh seam,
Snaplock seam, and „S" seam
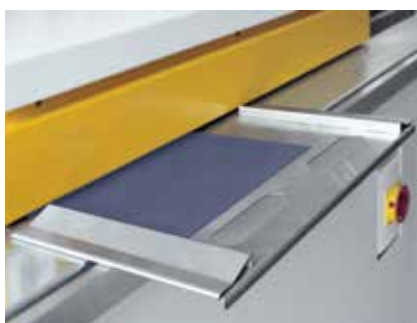

„S" seam and drive cleat

Set of rolls for Pittsburgh seam

SpeedySeamer with lubricant spraying
unit for stainless steel applications.

Small part material guide

Snaplock joint

Technical data	Sheet thickness max.	Rollforming stations	Speed ca.
SpeedySeamer RAS 22.09	1.5 mm	9	16 m/min.
SpeedySeamer RAS 22.07	1.5 mm	7	16 m/min.

VENTIrounder

For rounding elbow blanks with Snaplock, Pittsburgh or Standing seams.

Scale for radius adjustments

Rolls easily adjustable to the width of the part

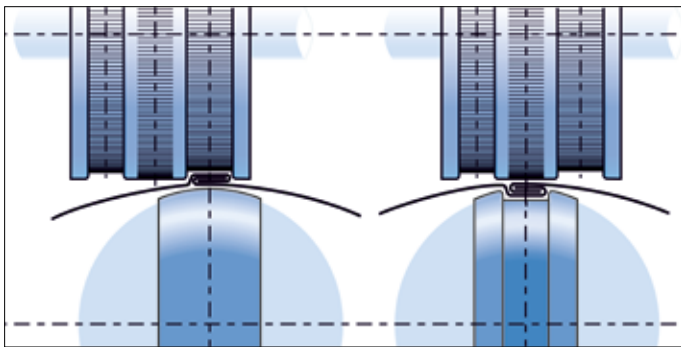Stiffening pliers reduce shaft deflection for consistent radii.

Rolls for standing seam and snap-lock seam.

Tape measure for quick roll positioning

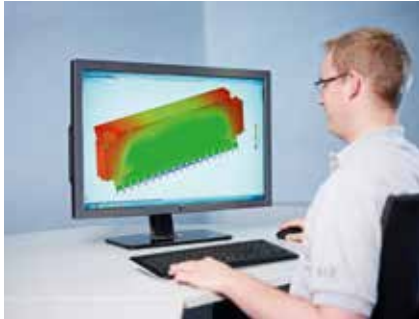| Technical data	Sheet thickness max.	Working length	Speed ca.
VENTIrounder RAS 40.91	1.25 mm	1500 mm	10 m/min.

RAS 25.15

For closing inside and outside seams on round pipe.

Technical data	Sheet thickness max.	Working length	Shaft diameter
RAS 25.15-2	0.88 mm	1520 mm	90 mm

Design

Sawing

Plasma cutting

Milling

Turning

Grinding

Welding

Powder coating

Assembly

Electrical assembly

Quality inspection

RAS - Regional production
for global sustainability

MADE IN GERMANY

07. 2020

Headquarters in Sindelfingen. In the foreground „Steel object".

Effringen - factory and artwork

RAS Systems LLC in Georgia, USA

All sheet thickness refer to 400 N/mm²
tensile strength. Subject to changes.
Pictures may show options.

Founder Wilhelm Reinhardt

Managing Directors Rainer Stahl and Willy Stahl

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