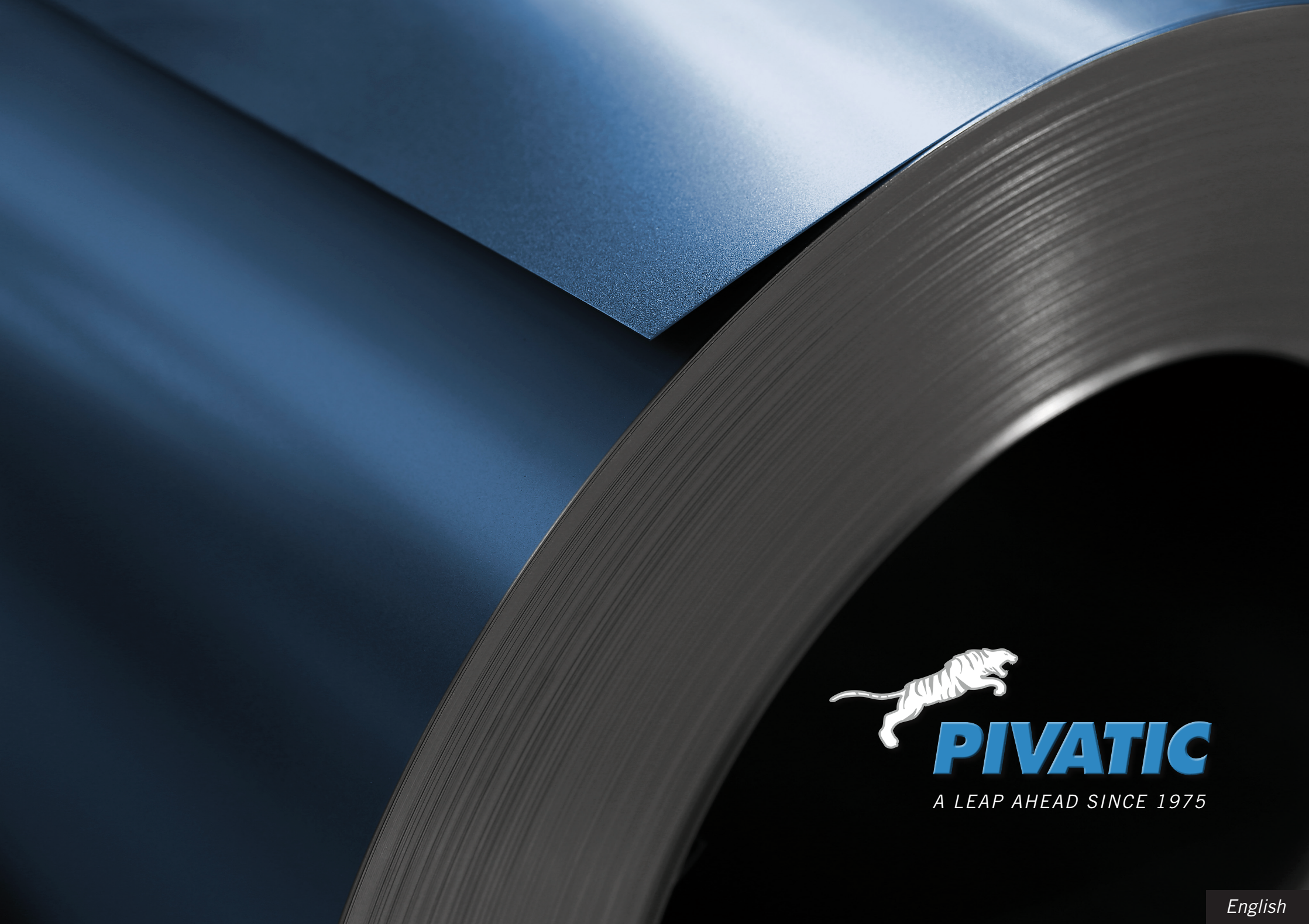


English

A leap ahead since 1975

Pivatic Oy – founded over 40 years ago – markets, designs and supplies worldwide coil punching and bending systems (FMS, Flexible Manufacturing Systems) to industries which utilize thin sheet metal. With sales and service partners worldwide, we ensure local, responsive, and reliable customer service. We are dedicated to progress, powered by inspiring and innovative solutions. At the same time we are focused on building trusting relationships with our customers and partners so that all can share the common benefits.

The World of Pivatic

PIVATIC
A LEAP AHEAD SINCE 1975

Return on Investment (ROI)

Our standard and customized solutions fall between stand-alone machines and dedicated, designed and engineered lines. We have always concentrated on processing coil material and in bending profiles, panels and wrappers using the same methods. This means we supply our customers with equipment well-proven in a working environment to keep your production ongoing at all times.

Excellent ROI equals.

Efficiency

Methods and Processes

PivaPunch

The **True Coil Width** is used when producing parts in bigger batches with minimized cycle times and waste of material. It is typically used at OEMs and at contract manufacturers and service centers for a better competitive edge.

The **Common Coil Width** fits for production of families of parts from the same coil, minimizing the setup times.

PivaPunch is more efficient than other sheet metal punching methods because it works straight from coil fully automatic, producing punched blanks non-stop, and stacks the parts the way you need them.

PivaBend

The **PivaBend** is to set a bending machine (Wing Former) for each edge of the work piece for the shortest possible cycle time and to avoid turning the component between bends. Highly accurate programmable feeders control transportation through the system and the positioning of the blank for bending.

PivaBend Bending Centers are designed for sections, panels and wrappers based on the customer's needs.

PivaSystem combines PivaPunch and PivaBend into one production line, where finished parts are produced straight from coil in one run without buffering.

Flexibility

Short and Frequent Runs

PivaPunch is more flexible because it uses an advanced and freely programmable CNC coil punch system. Switching between different parts without setup times is possible due to the software and the number of common standard thick turret-style tools available.

Blanks can be produced in series or subsequently when kits of parts are required.

The combination of CNC punching and dedicated press tools add capacity while maintaining flexibility.

PivaBend is flexible because negative and positive angles as well as dimensions are all programmable. The automated tool change system in the PivaBend eliminates manual setups completely for panels and wrappers.

Completing processes, such as spot welding, clinching and special offset forms can also be integrated into the PivaBend bending line.

Reliability

High Uptime

The **PivaPunch** CNC coil punching press was launched in 1999. It has been in production at over 100 leading manufacturers around the world, and we've developed the machine further while keeping the working principle the same. Reliability is secured by the state-of-the-art line controller and standard components from highly respected suppliers. All customers benefit from more than four decades of experience in coil punching technology.

The **PivaBend** Wing Former was launched in 1989. It has been developed further over the years and is now available with servo electric drives.

PivaCare - Our solutions are designed for a long lifetime, and they have high availability of uptime. Our professional service team has you covered 24/7. Whenever needed, we'll keep your machine updated to produce another decade or two.

PivaPunch

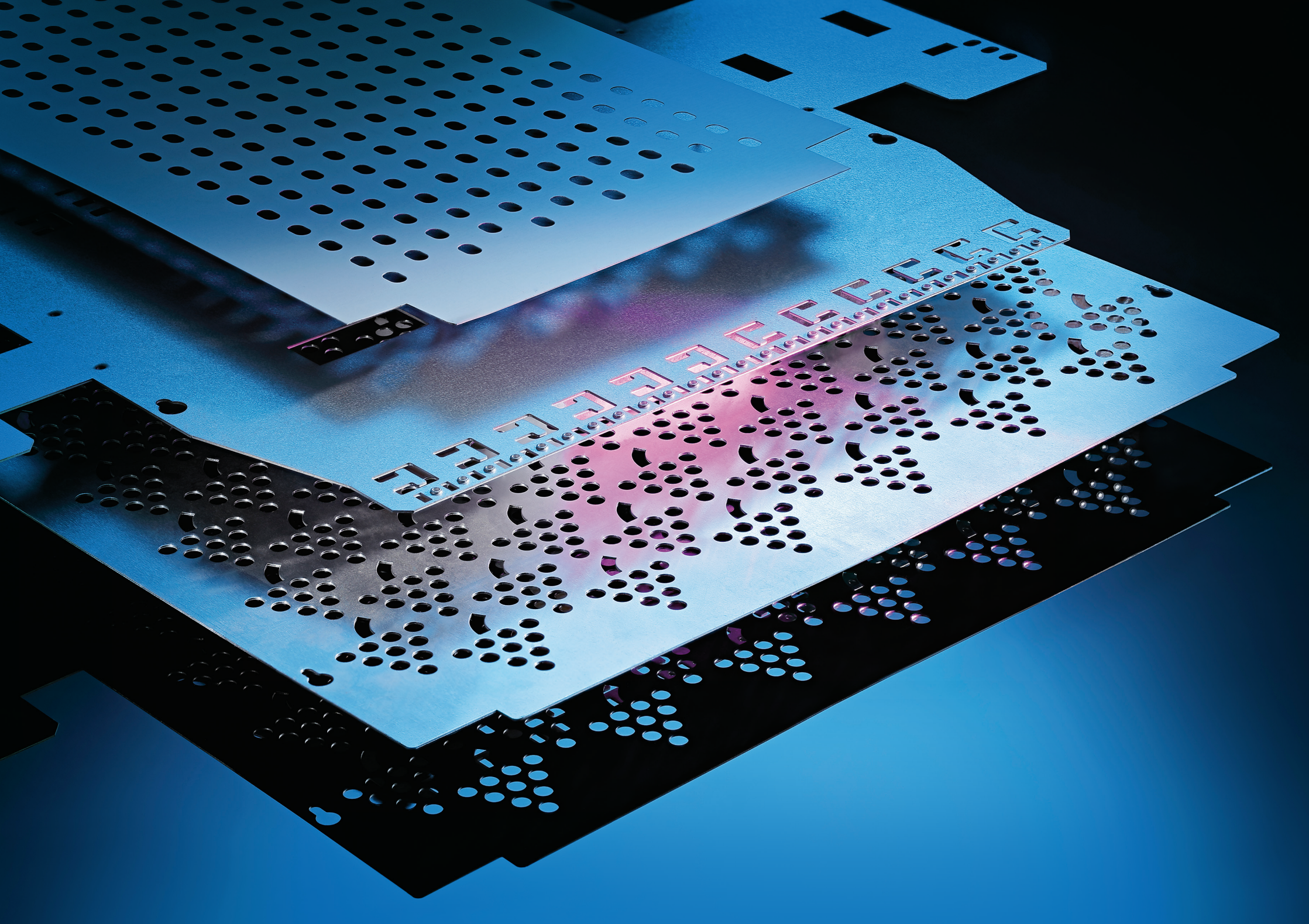
PivaBend

PivaSystem

PivaCare

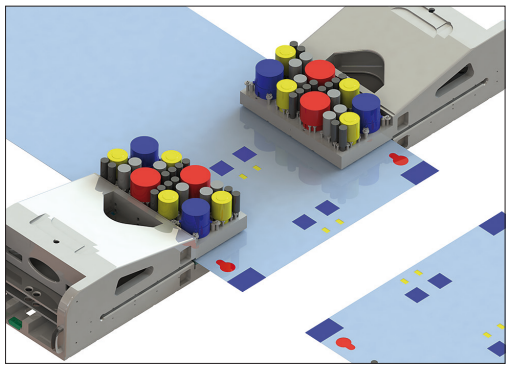
PIVATIC

A LEAP AHEAD SINCE 1975

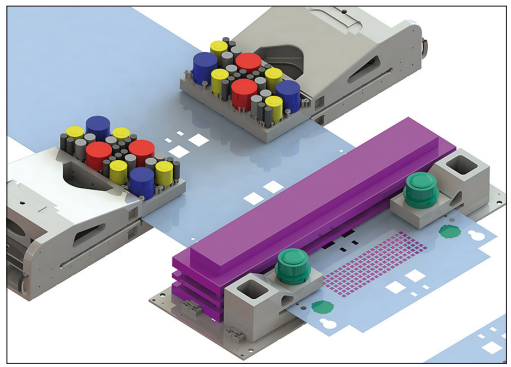


The Punching Process

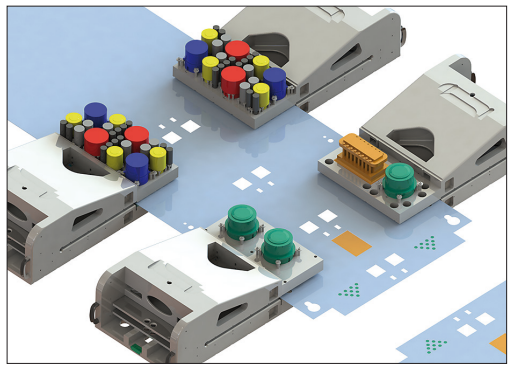
Customized to meet customer expectations.



PivaPunch in standard configuration includes a complete programmable feeder and a CNC punching station (TT/TTi) which use standard Thick Turret tooling set in quick change tool cassettes. Punching, embossing, notching, thread forming, and piercing are standard features.



A combination of CNC punching station and press tool (HT) offers flexibility and efficiency. The CNC punch covers changing hole patters, while activated tools handle perforation, large openings, notchings, etc. The tonnage of the press and the tool sizes are determined by the requirements of the application. Currently, Pivatic can offer HT systems up to 2500 kN / 250 Ton.



A second CNC punching station for large tools (LT) offers an extension towards more efficient but still flexible punching of fixed hole patterns, trimming, punching to width, embossing and notching.

Standard Thick Turret Tools are in Quick Change tool cassettes which are available in several configurations to meet your requirements.

Tools are of size A to E or A to F, indexing tools D or B & C.

TT/TTd are not compatible with TTf/TTfd cassettes.

Type	The number of tools	Total
TT	12A, 6B, 4C, 2D, 2E	26 Fixed
TTd	4A, 4B, 2C, 4D, 2E	16 Fixed
TTi	10A, 4B, 2C, 1D, 1E - 1 D Ind.	18 Fixed, 1 Indexing
TTii	10A, 4B, 2C, 1D, 1E - 1 B, 1 C Ind.	18 Fixed, 2 Indexing
TTf	10A, 6B, 2C, 1D, 1E, 1F	21 Fixed
TTfd	6A, 5B, 1C, 2D, 1E, 1F	16 Fixed

A – Ø12,7 mm/1/2”

B – Ø 31,8 mm/1 ¼”

C – Ø 50,8 mm/2”

D – Ø 88,9 mm/3 ½”

E – Ø 114,3 mm/4 ½”

F – Ø 152,4 mm/6”

PivaPunch

PivaSystem

The Software

The features included in the system are defined case-by-case depending on customer requirements.

PivaPunch

The standard PivaCam software includes modules for:

- Absolute parts
- Slices for Cut-to-Width Station
- Production queue
- Postprocessor and data transmission

Software for managing production, parametric parts and production reports is quoted according to their features.

PivaBend

The edge geometries are programmed using FlexBend-software. The size and the address of the blank are then combined to the bending program of a Profile, Panel and Wrapper.

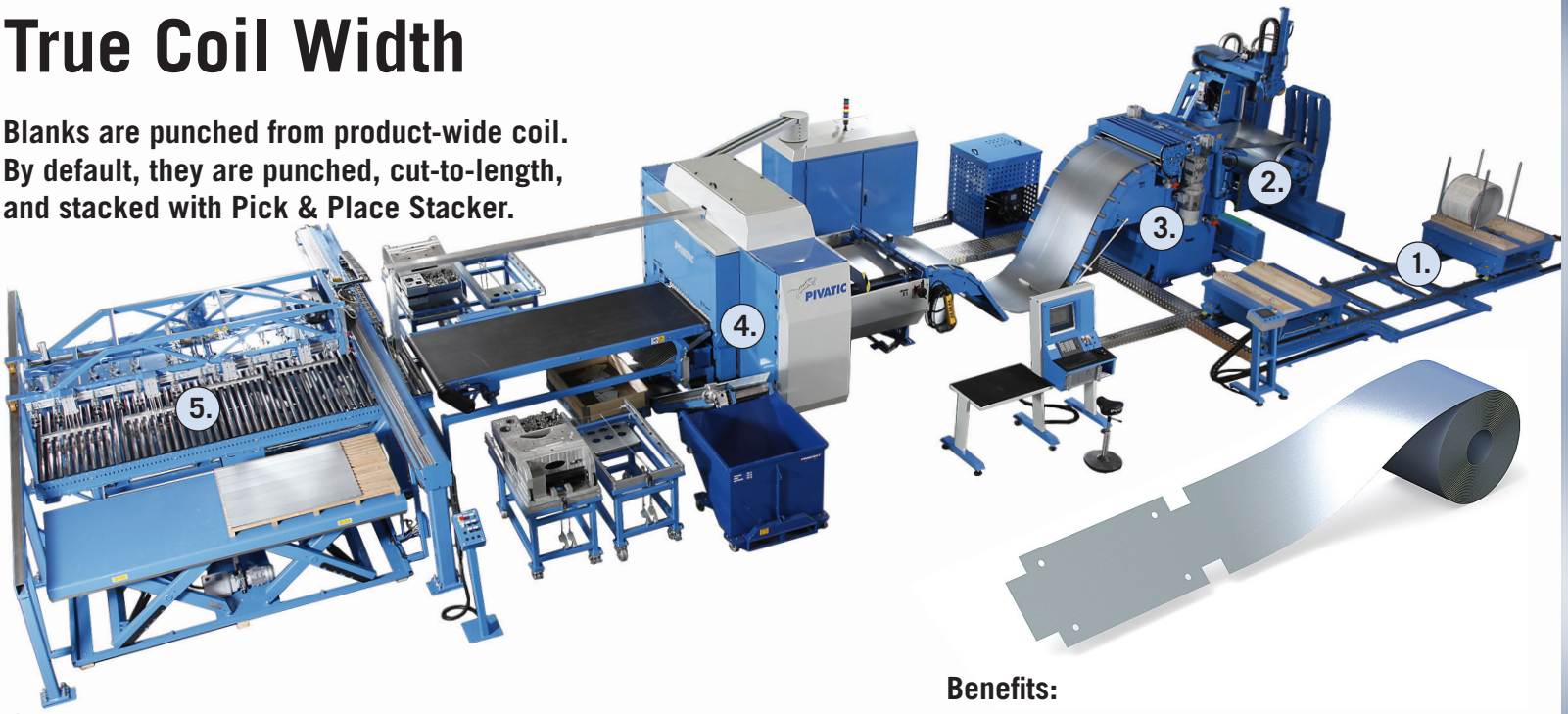
Production order	• CSV including the order parameters downloaded from ERP • Batch ID, part ID, batch size • Blank size • Stacking address • Other parameters depending on the application • Flat patterns from a 3D model
Parametric parts	• Tooling of parametric parts • Postprocessor for NC-code • Part IDs
Absolute parts	• Tooling of absolute parts • Postprocessor for NC-code • Flat patterns from a 3D model
Slices for Cut-to-Width Station	• Parts are nested on the strip • Similar and dissimilar parts

Production Queue	• Parts which are produced after each other are set to a queue including:
	  • Product part numbers
	  • Batch size
	  • Stacking address

Postprocessor and NC-blocks	• Parts are produced Off-Line in batches • Parts are produced On-Line as kits or batches

True Coil Width

**Blanks are punched from product-wide coil.
By default, they are punched, cut-to-length,
and stacked with Pick & Place Stacker.**



1. A **Coil stand** stand is adequate for applications where the coil is run complete.
Two Coil cars are to take down the coil and to load the next coil.
Coil Storage allows the PivaPunch to run independently for an extended period by keeping four to six coils available.

2. A single **Pick Up Decoiler** with hydraulic expansion for 5,000/10,000 kg coils and all thicknesses.
The **Double Decoiler*** allows quick coil change between two true coils.
The **Multiple Decoiler** holds three or more coils always ready to go for short batches of different materials.

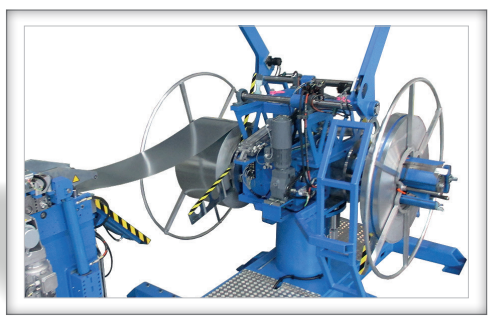
3. A **Straightener** is used to eliminate coiling tension (memory). A leveler can also be utilized and is available as optional equipment.
The Pivatic Clamp Feeder was developed to accurately position all different materials, thicknesses, and strip widths.

4. The **Punching Press** is configured depending on the sheet thickness – and can be supplied in either electric or hydraulic.

5. The **Pick & Place Stacker** is sized according to needs and can stack up to 10 m long blanks.
The number of lifting tables and stack locations per table are based according to customer application.

Benefits:

- No tool change time (all tools are active)
- Strip is fed non-stop from stroke to stroke
- Double Tool Punch (DTP) feature: two holes or corners of a symmetrical pattern punched at the same time to minimize the cycle time
- No dead punching zones, no skeleton required
- No loading time with continuous coil feeding
- No additional unloading time with the stacker
- No waste of material when using the True Coil Widths
- Semi-automated coil change for short down times



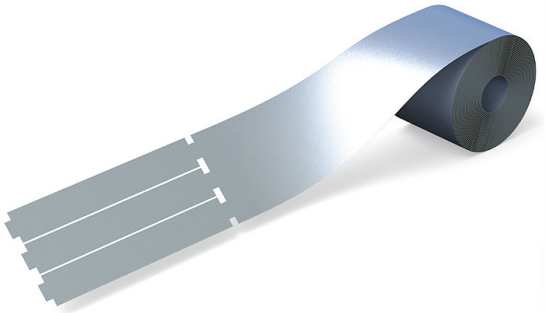
Double Decoiler*

PivaPunch

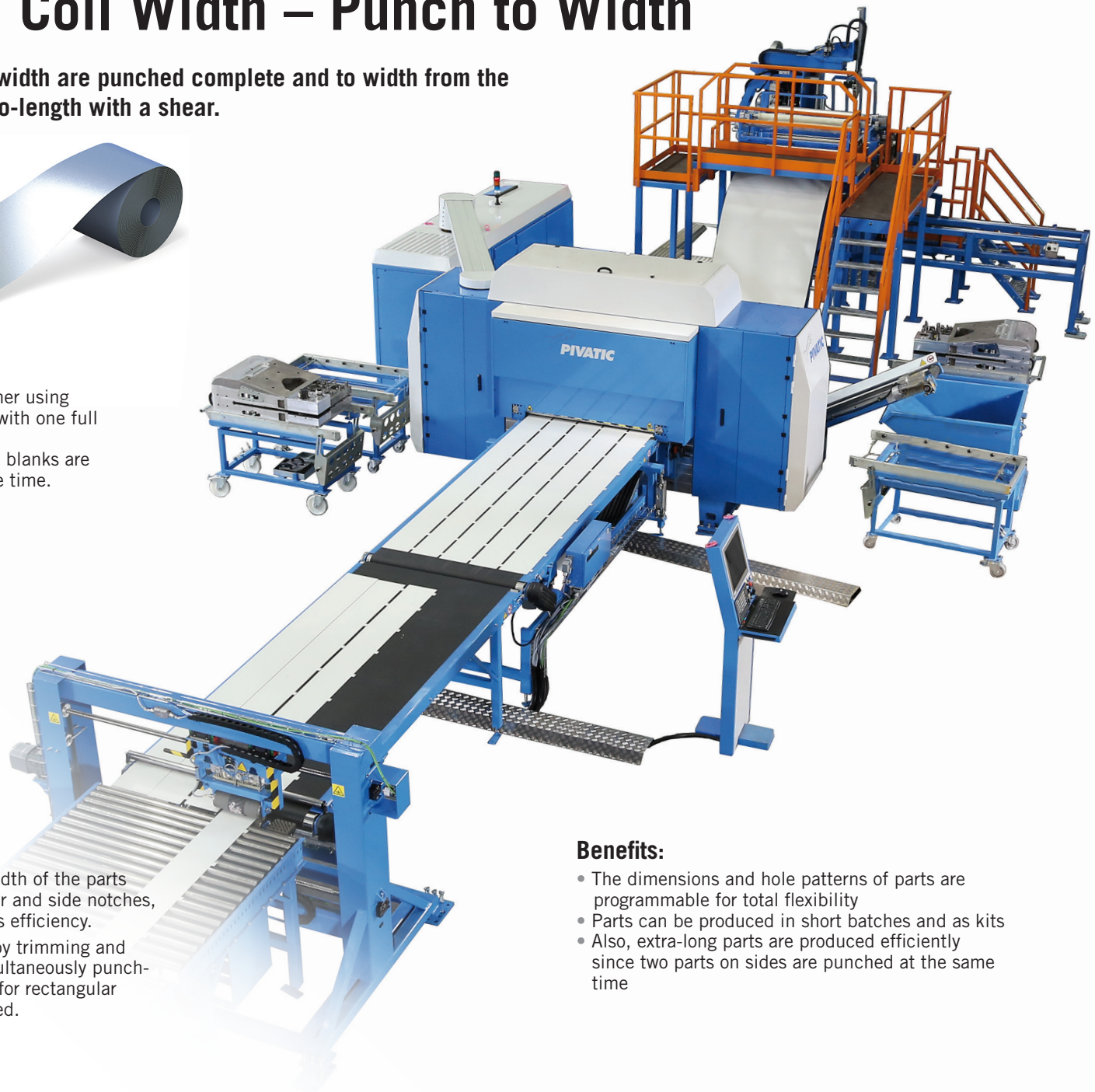
PivaPunch

Common Coil Width – Punch to Width

Blanks of different width are punched complete and to width from the same coil and cut-to-length with a shear.



Blanks are cut-to-length either using partial cuts (one by one) or with one full stroke of the shear.
In the Pick & Place Stacker, blanks are stacked one or several at the time.



Trim & Notch

In applications where the width of the parts varies and which have corner and side notches, the **Trim & Notch station** adds efficiency.

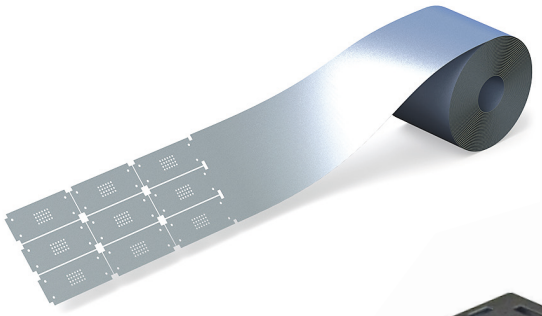
Cycle times are minimized by trimming and notching the part while simultaneously punching the next part. The need for rectangular notching tools is also reduced.

Benefits:

- The dimensions and hole patterns of parts are programmable for total flexibility
- Parts can be produced in short batches and as kits
- Also, extra-long parts are produced efficiently since two parts on sides are punched at the same time

Common Coil Width – Cut to Width

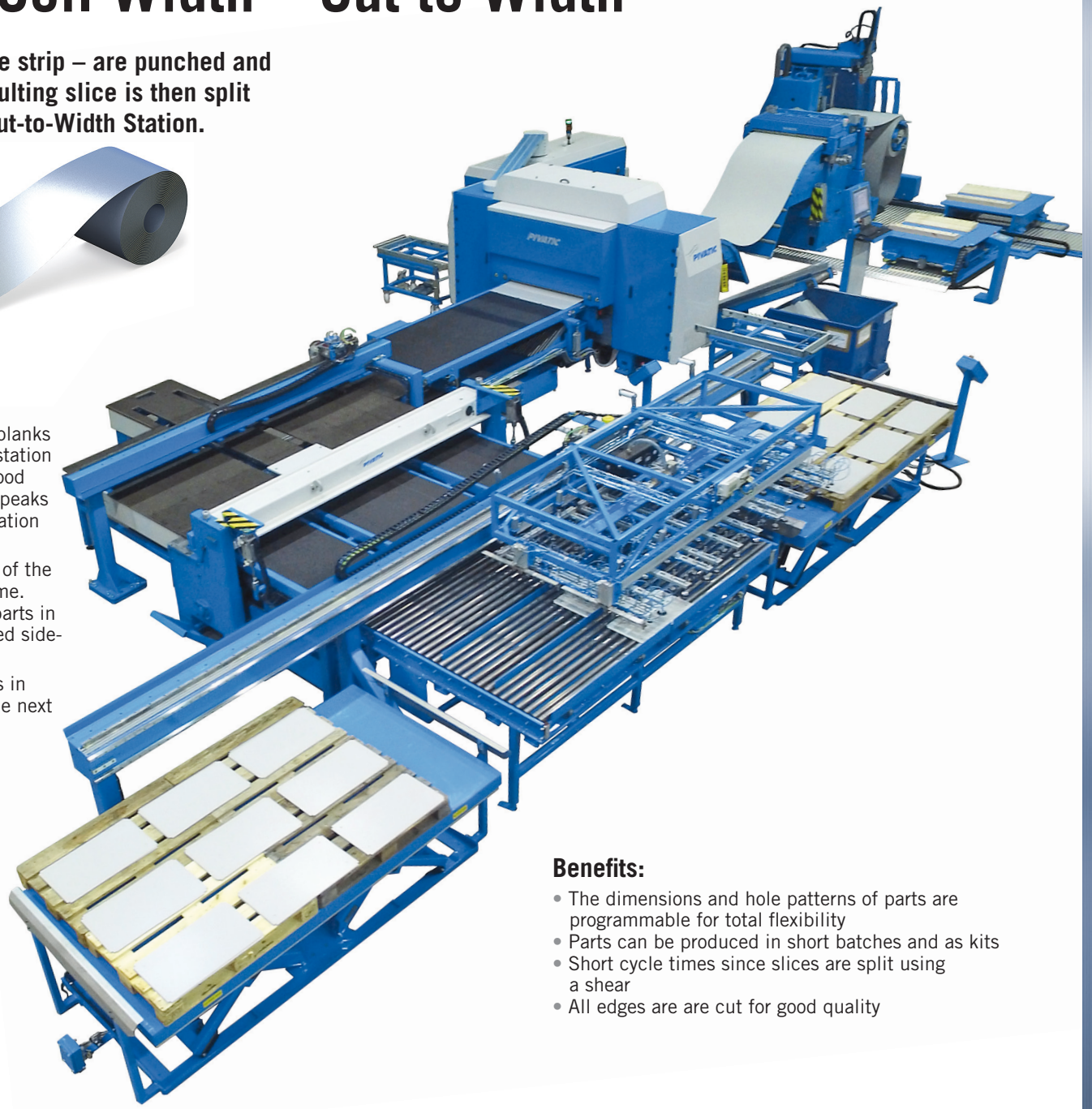
Blanks – nested on the strip – are punched and cut-to-length. The resulting slice is then split into products in the Cut-to-Width Station.



Instead of punching-to-width, blanks are cut-to-width in a different station in one stroke. This results in good edge quality without tolerance peaks with the highest material utilization possible.

Punching and cutting-to-width of the slice take place at the same time. There's no scrap between the parts in X-direction, and parts are nested side-by-side minimizing waste.

Products are stacked on pallets in the stacker or transported to the next operation.



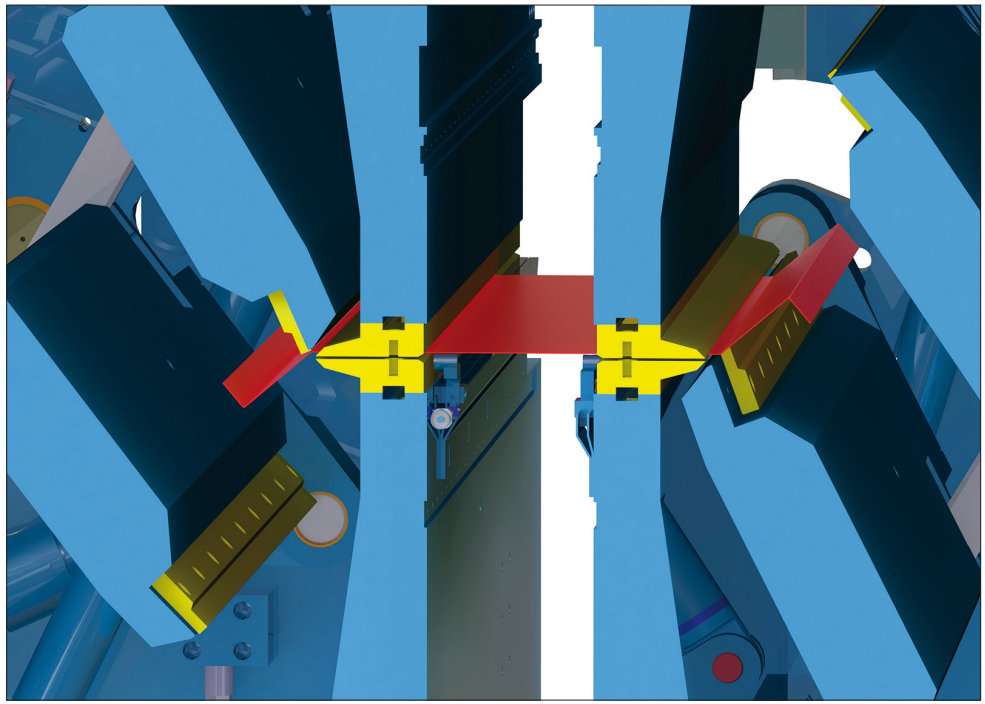
Benefits:

- The dimensions and hole patterns of parts are programmable for total flexibility
- Parts can be produced in short batches and as kits
- Short cycle times since slices are split using a shear
- All edges are are cut for good quality

PivaPunch

The Bending Process

Bending is carried out using a wing-forming technology which is most suitable for sensitive materials. There is no wear on tooling. One bender is set for each edge of the work piece.
Benders are designed for the following two configurations: Upwards (positive bends), and Upwards and downwards (negative bends). They are always controlled with the CNC.
Benders are servo electric for lighter gauge and hydraulic for heavy-duty applications.
The benders are selected according to the type of material, material thickness, and main dimensions of the work pieces.



Sections are bent in one station which includes two benders and feeders for transportation and positioning of the work piece.

The length of blanks is up to 3050 mm/120".

Panels – Sides are bent in the first station and the ends in the second.

The hold-down tools for the ends are changed either by hand or by a tool changer.

The width of the blank is 800 mm/31", 1000 mm/39", 1250 mm/49", 1500 mm/59", 1800 mm/70".

Wrappers 300 mm/11" and wider are completed in a separate station.

The height of the wrapper up to 2000mm/78".

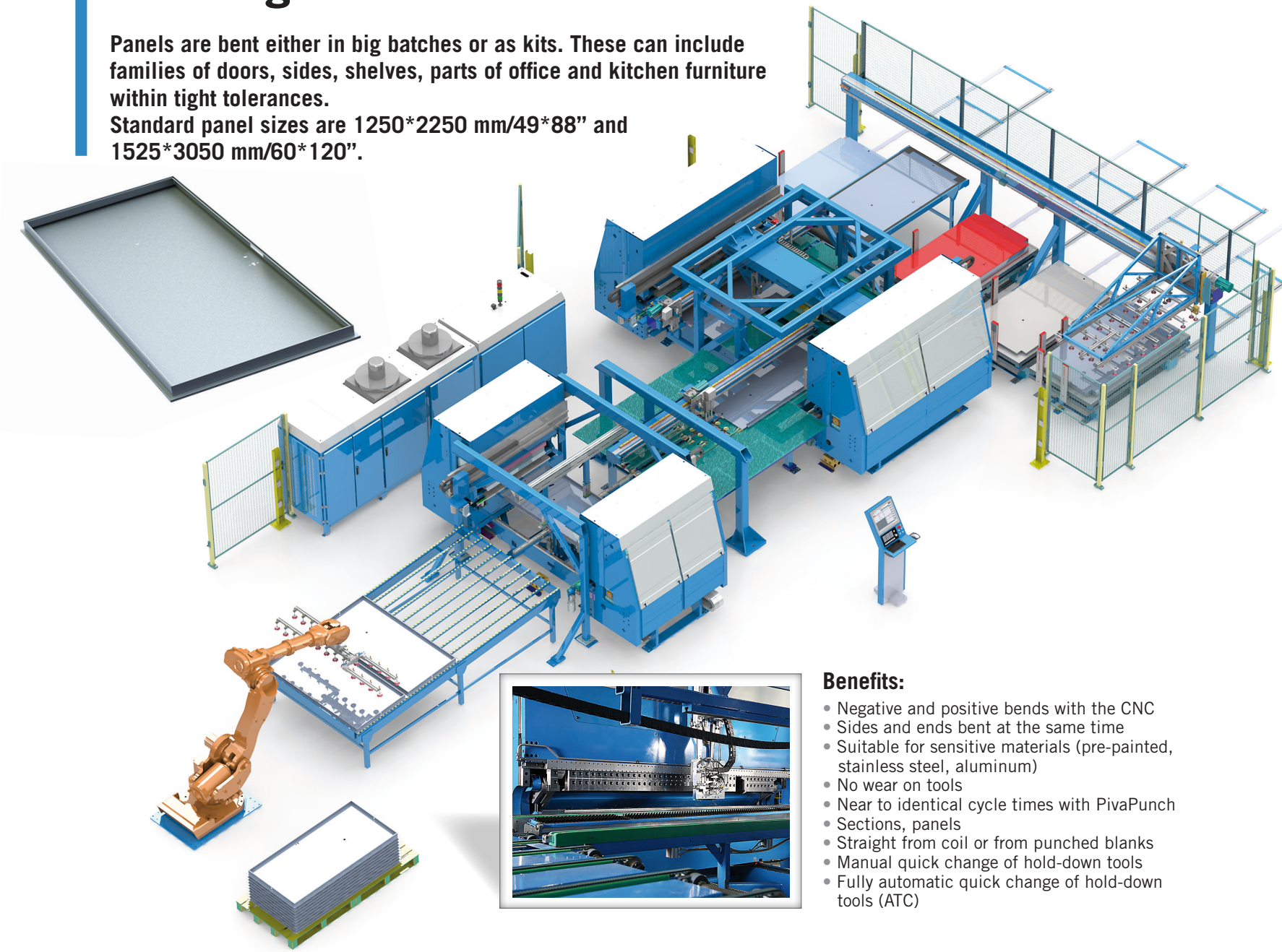
Material/Thickness	Sides up to	Bending
MSt/1,8 mm/0,07" - AISI 304/1,2 mm/0,047"	2000 mm/78"	Up-and downwards ±115°
MSt/ 1,5 mm/0,059" - AISI 304/1,0 mm/0,039"	2500 mm/88"	Up-and downwards ±115°
MSt/ 1 mm/0,039" - AISI 304/0,60 mm/0,023"	3050 mm/120"	Up-and downwards ±115°
MSt/ 1,8 mm/0,07" - AISI 304/1,20 mm/0,047"	3050 mm/120"	Upwards ±115°
MSt/2 mm/0,078" - AISI 304/1,50 mm/0,057"	2000 mm/78" 2250 mm/88" 2500 mm/98"	Upwards ±115°

PivaBend

PivaBend

Bending Panels

Panels are bent either in big batches or as kits. These can include families of doors, sides, shelves, parts of office and kitchen furniture within tight tolerances.
Standard panel sizes are 1250*2250 mm/49*88” and 1525*3050 mm/60*120”.

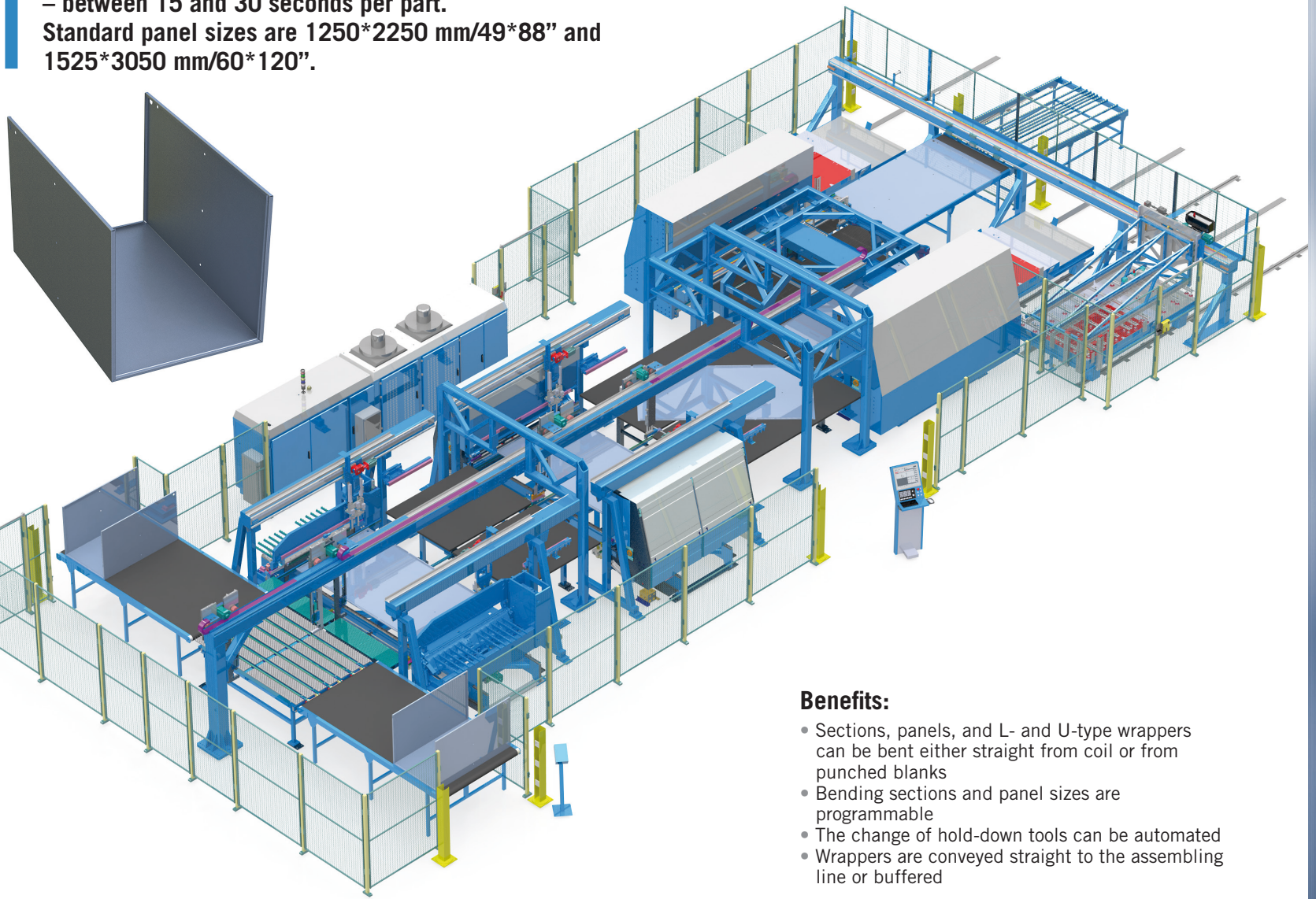


Benefits:

- Negative and positive bends with the CNC
- Sides and ends bent at the same time
- Suitable for sensitive materials (pre-painted, stainless steel, aluminum)
- No wear on tools
- Near to identical cycle times with PivaPunch
- Sections, panels
- Straight from coil or from punched blanks
- Manual quick change of hold-down tools
- Fully automatic quick change of hold-down tools (ATC)

Bending Wrappers

Families of wrappers, i.e., furnaces, air handlers, drawer bodies, tool boxes etc. are bent from pre-punched blanks. The cycle time for a completed wrapper varies – depending on sections – between 15 and 30 seconds per part.
Standard panel sizes are 1250*2250 mm/49*88” and 1525*3050 mm/60*120”.



Benefits:

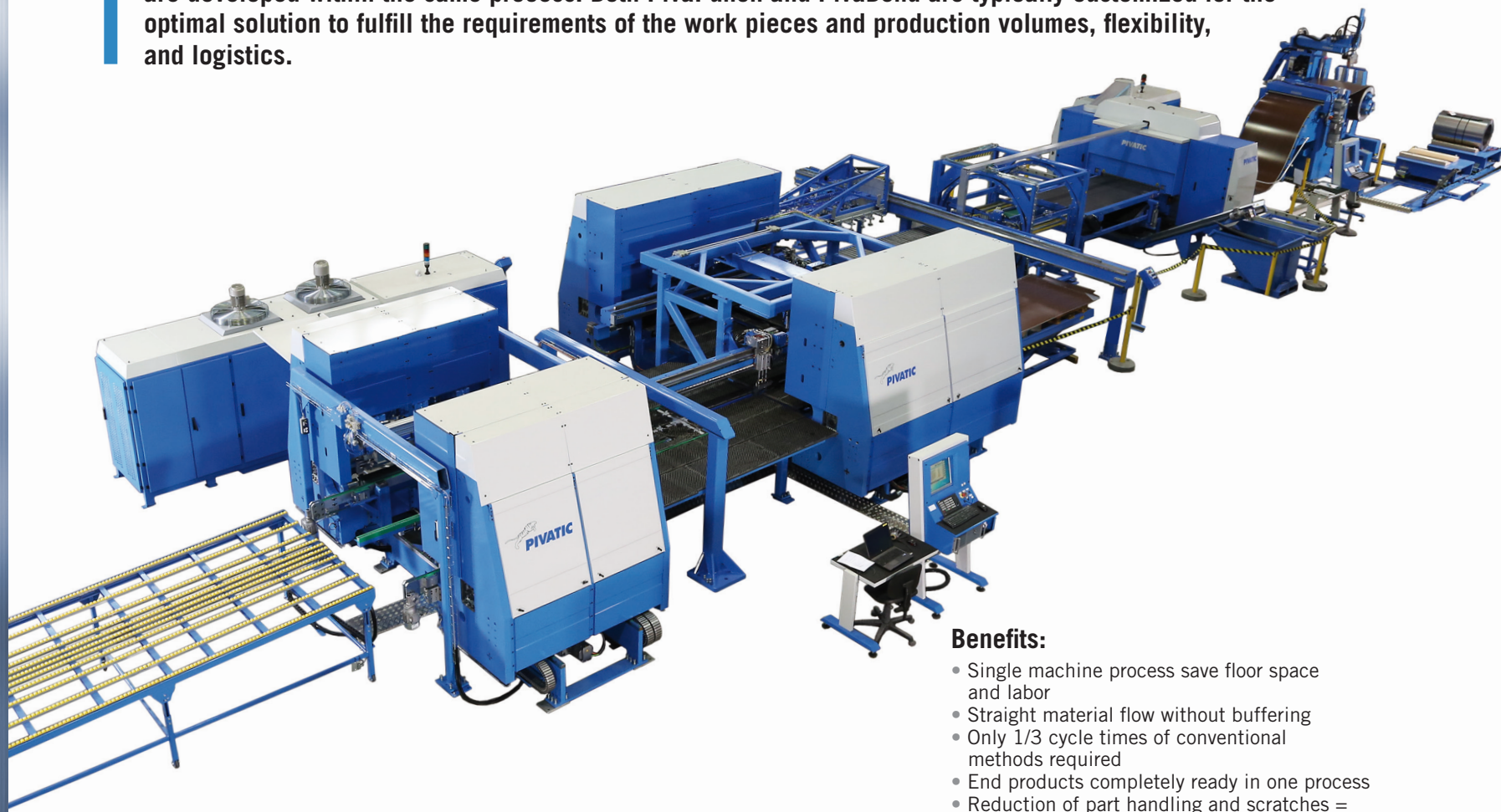
- Sections, panels, and L- and U-type wrappers can be bent either straight from coil or from punched blanks
- Bending sections and panel sizes are programmable
- The change of hold-down tools can be automated
- Wrappers are conveyed straight to the assembling line or buffered

PivaBend

PivaSystem

The Solution

Our experienced sales and project teams are at your service for product analysis, designing the optimal production line solution, and to ensure on-time manufacturing, smooth run-off and start-up processes. The best results are achieved from partnerships where your end product and the production equipment are developed within the same process. Both PivaPunch and PivaBend are typically customized for the optimal solution to fulfill the requirements of the work pieces and production volumes, flexibility, and logistics.



Benefits:

- Single machine process save floor space and labor
- Straight material flow without buffering
- Only 1/3 cycle times of conventional methods required
- End products completely ready in one process
- Reduction of part handling and scratches = optimal product quality
- Roll forming applicable
- Welding and clinching operations added as required by the application

Long Term Reliability

We are committed to serve our customers with a wide range of services:

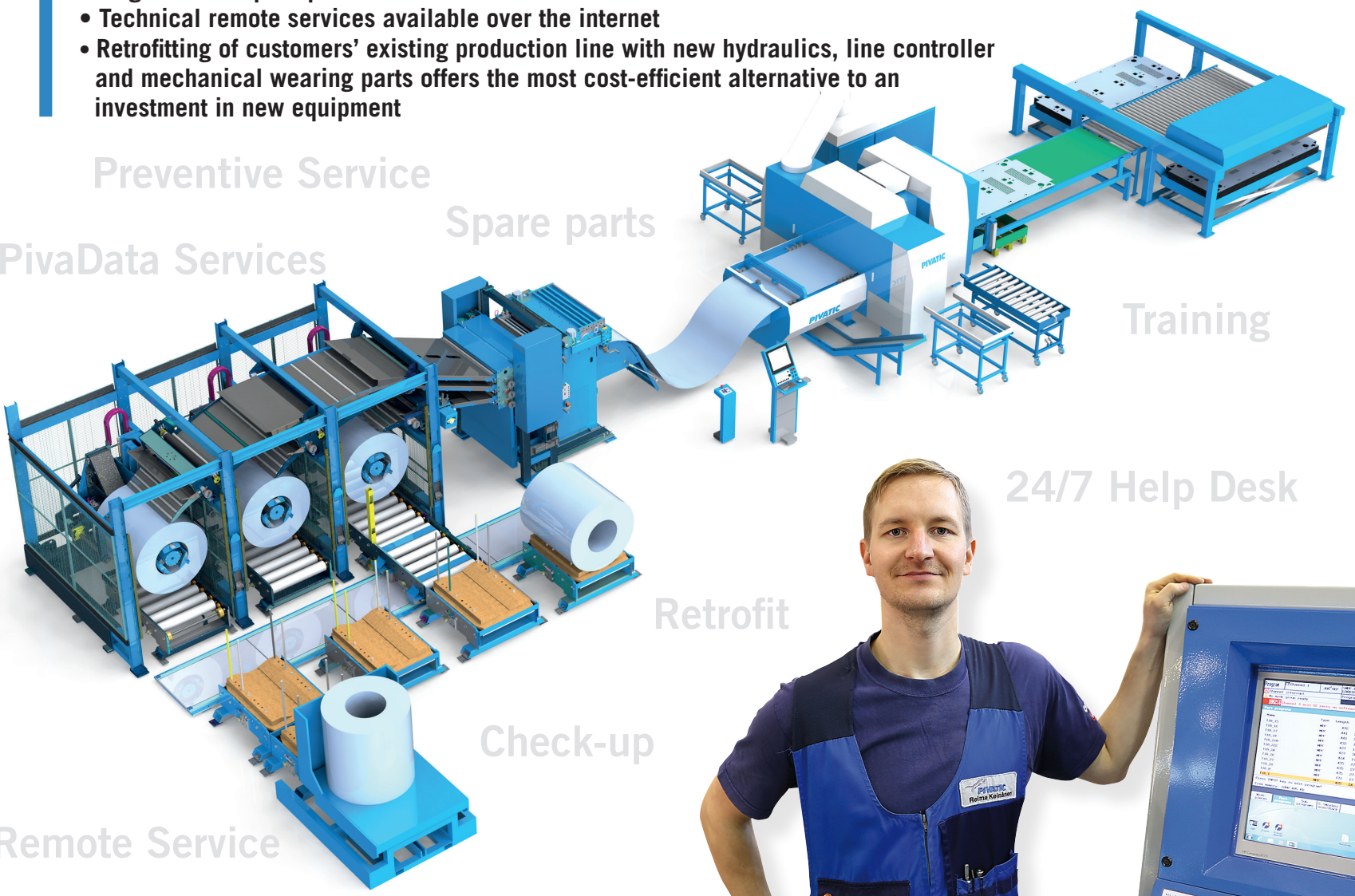
- **Customized programming, operation and maintenance training**
- **Production ramp-up**
- **Original OEM spare parts**
- **Technical remote services available over the internet**
- **Retrofitting of customers' existing production line with new hydraulics, line controller and mechanical wearing parts offers the most cost-efficient alternative to an investment in new equipment**

Preventive Service

Spare parts

PivaData Services

Training



24/7 Help Desk

Retrofit

Check-up

Remote Service

PivaCare

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