



**Blechexpo**



TRUMPF

THICK TURRET

SALVAGNINI



AWARDS / NEWS / INNOVATIONS

**BLECHEXPO 2017**

# ps:<sup>®</sup>vertical-wheel-90

FOR MACHINE TYPES TRUMPF & THICK TURRET

- pre- and endforming of bends up to 90° with ONE tool
- radius min. 25 mm



patented  
DE 20,2015,007,495

# ps:<sup>®</sup>vertical-wheel-180

FOR MACHINE TYPES TRUMPF & THICK TURRET

- pre- and endforming of bends from 90° up to 180° with ONE tool
- pre-bending necessary with ps:<sup>®</sup>vertical-wheel-90

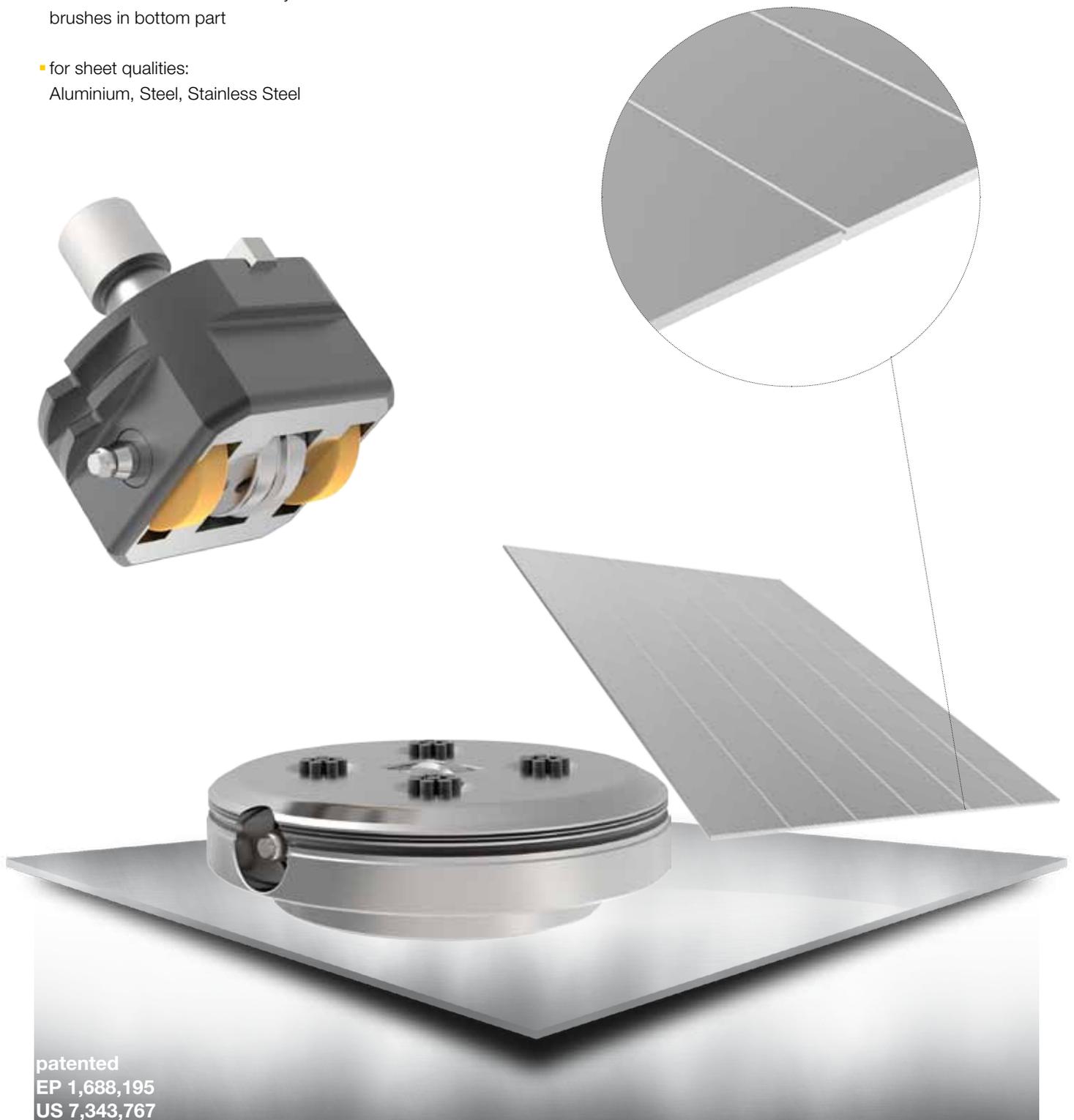


patented  
DE 20,2015,007,495

# ps:<sup>®</sup>wheel-pincher (WITH SUPPORT WHEELS)

FOR MACHINE TYPES TRUMPF & THICK TURRET

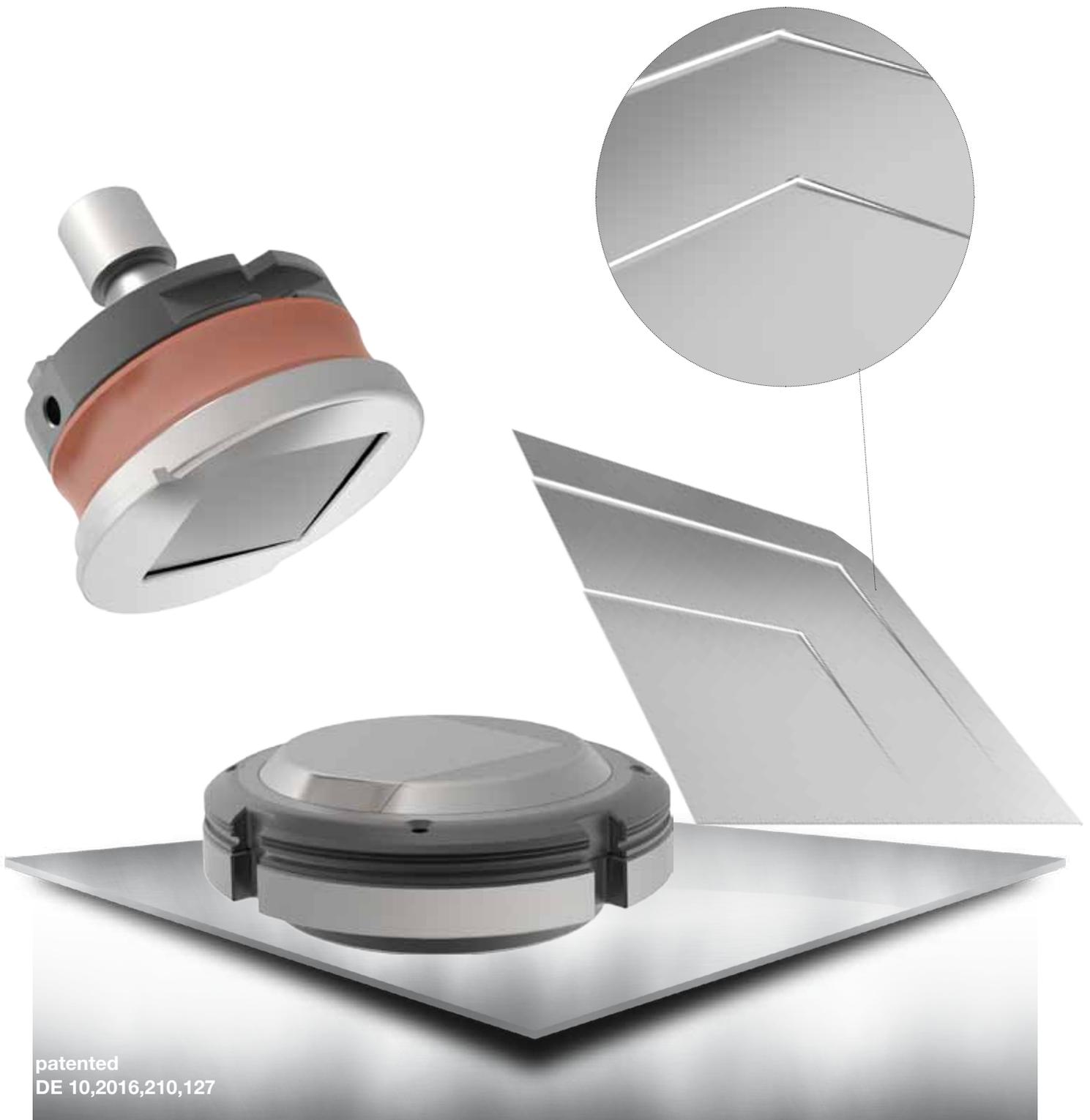
- for producing defined breaking edge without warpage
- for sheet thicknesses:  
s=0,8 - 1,5 mm
- reduction of sheet scratches by brushes in bottom part
- for sheet qualities:  
Aluminium, Steel, Stainless Steel



patented  
EP 1,688,195  
US 7,343,767

ps:<sup>®</sup>shear  
FOR MACHINE TYPES TRUMPF & THICK TURRET

- Special Tool to shear sheets without creating nibbling marks or material loss



patented  
DE 10,2016,210,127

# ps:<sup>®</sup>wheel-crowning

FOR MACHINE TYPES TRUMPF & THICK TURRET

- for production of corrugated metal sheets and peaks in sheets
- for sheet qualities:  
Aluminium, Steel, Stainless Steel
- for sheet thicknesses:  
s=0,8 - 1,2 mm



patented  
EP 1,688,195  
US 7,343,767

# ps:<sup>®</sup>emboss5

FOR MACHINE TYPE TRUMPF

- lower part in size 5 with max. size and spring-loaded stripper (Ø 98,5 mm)
- for TRUMPF-machines with active die
- warpage will be minimized

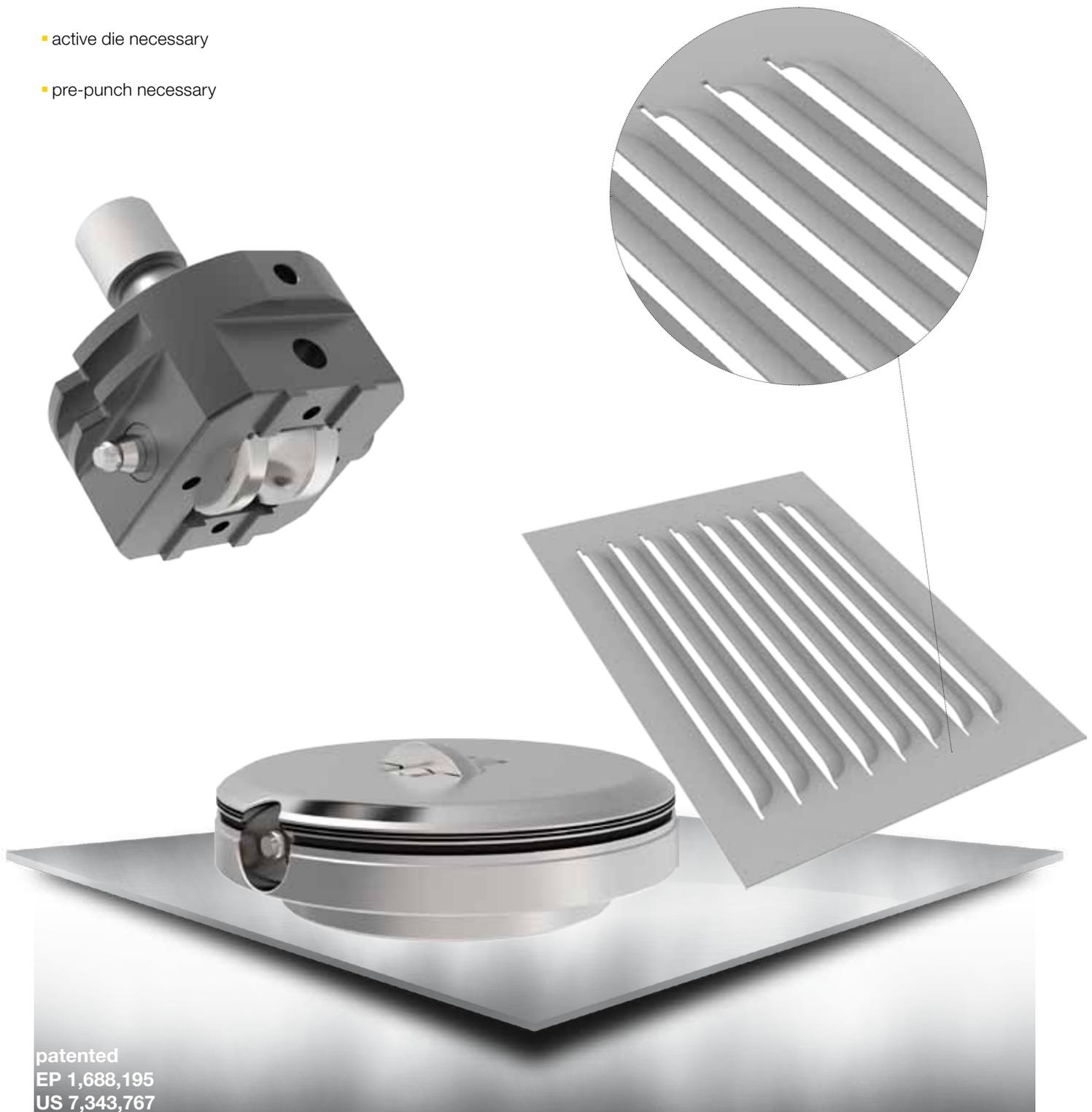


## PRODUCT INFORMATION

# ps:<sup>®</sup>wheel-louver

FOR MACHINE TYPES TRUMPF & THICK TURRET

- production of continuous louvers with high speed possible
- no nibbling marks
- active die necessary
- pre-punch necessary



patented  
EP 1,688,195  
US 7,343,767

# ps:<sup>®</sup>louver5

FOR MACHINE TYPES TRUMPF & THICK TURRET

- Louver Tool, size 5
- louver length 100 mm in ONE hit
- active die necessary
- ejector pins in upper part



# ps:® macro-joint

FOR MACHINE TYPES TRUMPF & THICK TURRET

- trouble-free production process
- no waste of the machine table caused by slugs
- optimizing the production process
- timesaving
- solution-oriented



# ps:®macro-joint

## FOR EFFECTIVE PRODUCTION WITH MANUAL PART EXTRACTION

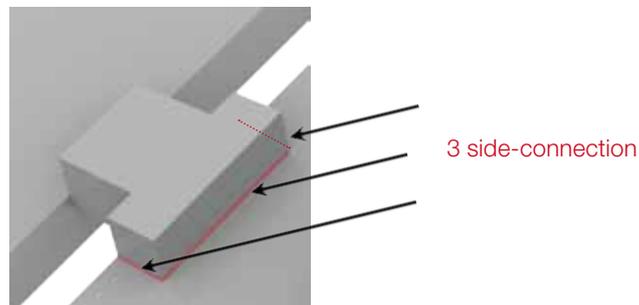
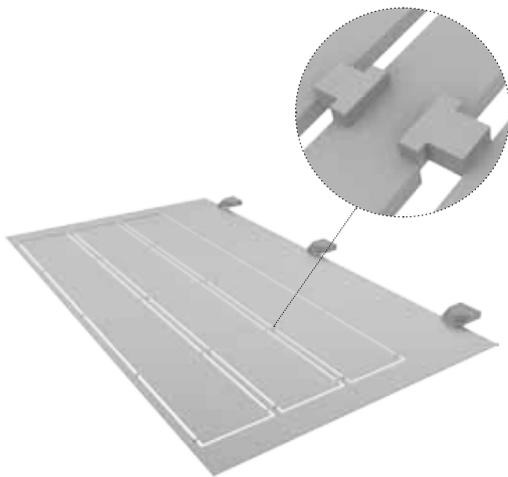
All machine operators and programmers know the problem:

Producing long parts (e.g. 1700 mm) with a small width (e.g. 250 mm). In this case 3 parts can be produced nested on a sheet plate with fence production.

The tool **ps:®macro-joint** is used for connecting parts with a rest fence. The technology is similar to the patented **ps:®knock-out** by PASS whereas the quantity of the macro-joints are determined by the programmer.

The machine operator can remove the single parts directly on the machine table after the completed sheet plate was produced.

The connecting bridge of the **ps:®macro-joint** is encircled on the 3 sides of the rest fence. This ensures that the connecting bridge remains on the rest fence of the sheet when the parts are broken out.



The machine operator does not have to worry about that the connection bridges create burrs that can fall into the brush table and cause scratches on the proceeding processes.

After taking the completed sheet plate from the table the single parts can be removed individually.

An additional example for using **ps:®macro-joint**:

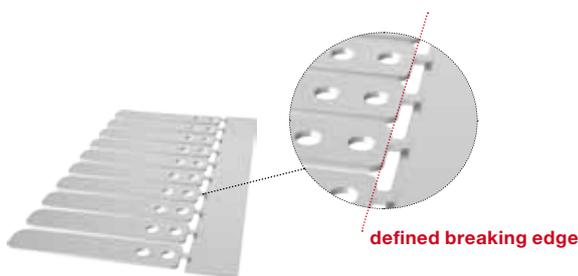
Complicated and difficult production procedures are often necessary when small parts with bends have to be produced.

The request for punching parts with bends will always be required. But sometimes it is not possible to produce these small parts as they can't be removed through the „part shoot“ on the machine.

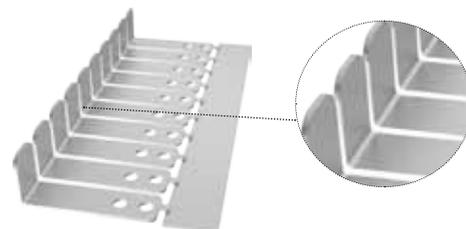
**But now it's easy:**

**ps:®macro-joint** is a practical alternative in order to bend several parts together in the requested angle.

The single parts must be produced in its form in one row on the sheet.



The bending on a press brake machine can be done as soon as the prefabricated sheet with the connected single part is produced. The sample shows 10 single parts that can be produced in one bending process.



As shown in the picture, a metal strip (carrier plate) was produced on a side with a connection bridge to the single part. You see that it is also important to use the 3-side macro-joint connection.

# ps:<sup>®</sup>2in1-hinge

FOR MACHINE TYPES TRUMPF & THICK TURRET

- for different sheet qualities  
s=0,5 - s=2,0 mm
- embossing and final hinge production  
in ONE tool
- eliminating a second tool change
- opens a tool station
- increase in production
- reduced sheet scratches



# ps:<sup>®</sup>2in1-hinge FOR PRODUCING HINGES

Hinge connections are an important and interesting concept.

In the production area hinges are mostly produced of metal and allow the ability to connect two parts together in a flexible way. It doesn't matter if a door has to be fixed in a door frame or if two wooden parts have to be connected: one hinge can make everything possible!

Typically hinges are produced on a punching machine with 2 tools:

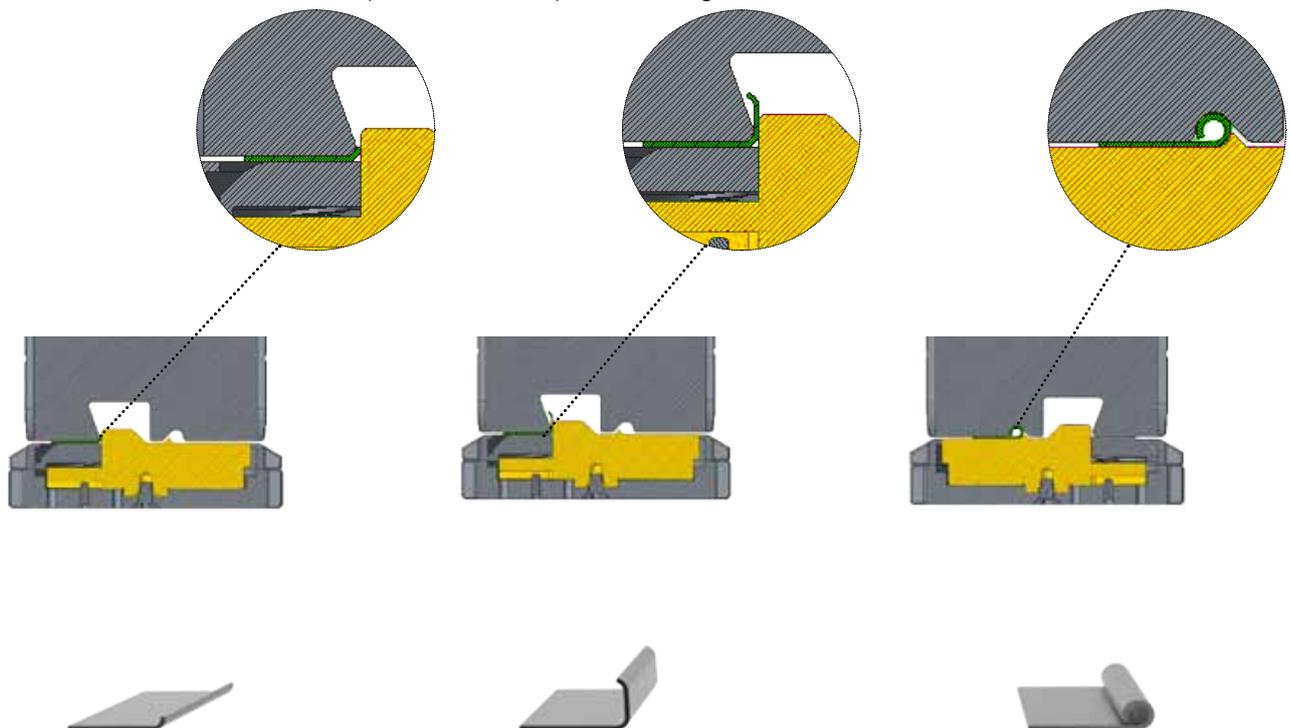
The first tool produces the embossing (min. 2 hits). Afterwards the „rounding“ of the hinge is carried out with the second tool.

The innovation at PASS Stanztechnik AG now improves the efficiency for producing hinges: the

## ps:<sup>®</sup>2in1-hinge

Both metal forming sequences can be carried out with only ONE single tool producing a hinge.

The **ps:<sup>®</sup>2in1-hinge** consists of two tools: a spring-loaded part and a solid part. The embossing will be made with the first hit by the spring-loaded part of the tool. The second hit is taking the height of the sheet into consideration. Afterwards the tool makes a rotation of 180° in order to use the solid part of the tool to produce a hinge.



### ADVANTAGES:

- Embossing and final hinge production in ONE tool
- Opens a tool station
- Eliminating a second tool change
- Increase in production
- Reduced sheet scratches

# ps:®MTi4B+4

## ps:®MTi4B+4 FOR MACHINE TYPE THICK TURRET

- effective reduction of production time due to combination of rotating ram head and Index Station
- application of 4 punching tools (Station B) + 4 tools: Countersink Tool, Marking Tools, Engraving Tool
- fast tool change
- all tools rotatable
- easy length adjustment
- increasing of tool quantity within turret
- security of punch inserts by locking system
- hold-up function for deactivated punches
- highest stripping force for sheet thickness up to 6 mm
- compatibility to inserts of ps:®beta-V2® – Station B



Design sample: head type for machine type PRIMA POWER

patented  
DE 10,2015,219,416

02/2015

# ps:®MTi4B+4

## ps:®MTi4B+4 FOR MACHINE TYPE THICK TURRET

As OEM supplier of Prima Power, PASS Stanztechnik AG was able to design and produce a new multitool in order to considerably increase the efficiency and capacity of the turret table of the Prima Power punching machine (Genius Family). The innovation of the Prima Power punching machine can be found in the rotatable ram head on the punching machine. The innovation of the tool developed by PASS Stanztechnik AG combines 4 punching tools Station B and 4 Countersink, Marking and Engraving Tool to a flexible useable multitool.

The result was „ps:®MTi4B+4“

The new ps:®MTi4B+4® enables the useage of 4 punching tools (Station B) as well as 4 Embossing tools on one single tool station in the turret. The punching tools pave the way for a maximum diameter up to Ø 31,75 mm and are rotation applicable. The tools for engraving, embossing and countersinking are integrated in the ps:®MTi4B+4 and do not need to have additional turret places. Thus enables more of the most needed additional Index stations for additional application on the turret. The maximum diameter can be outbided up to Ø 15 mm.

### Description of operation:

The tool selection functions in combination with the rotatable ram head and the Index Station. The Index Station enables the rotation of the tools. This combination enables a reduction of the production time of the sheet as the fastest tool selection can be guaranteed. The punching and embossing process proceeds normal as soon as the tool was selected. Embossing tools are arranged between the punching tools. The embossing ram of the engraving insert (Pos. 5) is placed 2,5 mm higher of the tool head in order to enable the activation of the tool from the top. The hold-up function in ps:®MTi4B+4 guarantees that deactivated punches remain within the tool and do not scratch the sheet.

### Example of production:

In the lamp industry the production of lamp housing needs the production process „Corner notching“. In order to manage this production step with the required big notching, the production needs to have predominantly big tools which do not fit into a D-Station. Furthermore mirrored contours are needed. Consequently several turret stations would have to be reserved only for corner notching tools. BUT: 4 integrated punching tools within the ps:®MTi4B+4 enables this notching with only one single rotation station.

### The result is amazing:

The complete processing and production of the lamp housing can be carried out with only one single tool station as all tools for embossing, countersinking, engraving and punching are integrated in this one single tool ps:®MTi4B+4. The complete sheet can be made without any single turret movement and generates an efficient reduction of production time. Additionally some more free station on the turret can be used for additional punching and embossing procedures.

### Tool change:

The length adjustment of the punches can easily be made by single turning of the punch head. The tool change can be made without any additional tools. The punching tools are loaded from above and fixed by a locking system within the upper part (Security of punch inserts by locking system). Deactivated punches are hold in the remaining position by spring-loaded bolts. The Countersink, Marking and Engraving tools are loaded from the bottom and are also fixed with the locking system.

### General information:

The insert of ps:®beta-V2® are compatible to the inserts of ps:®MTi4B+4 and can also be used for this application.

### Result:

EFFECTIV REDUCTION OF PRODUCTION TIME WITH  
8 TOOLS, 1 STATION, 0 TURRET MOVEMENT

# ps:® multi-thread®

FOR MACHINE TYPE THICK TURRET - STATION D

- fast and easy changing of thread modules
- different sizes of thread modules possible: up to M10 respectively UNC3/8"-16
- possibility to use metric and inch system in one equipment
- automatic single position selection of thread modules
- also useable for up- and downwards extrusions
- useable for all sheets up to 8 mm (also stainless steel)
- with tool and sheet lubrication
- fast thread forming within  $\varnothing$  2 sec./ thread



patent  
EP 3,180,139

12/2011

# ps:<sup>®</sup>multi-thread<sup>®</sup>

## FOR MACHINE TYPE THICK TURRET - STATION D

Forming threads is a time consuming process!

In the past, of course, it was possible to use thread forming tools on the machines. However, this was only possible by using a single tool in the revolver or as an external solution by using complete thread units being aware that there are a lot of restrictions towards covering the sheet areas and towards the speed.

The new „ps:<sup>®</sup>multi-thread<sup>®</sup>“ - developed and produced by PASS Stanztechnik AG - can be used as a 6-Station Multitool which is integrated in a one rotatable D-Station of a THICK TURRET punching machine.

**Economy effect:** only using one tool station versus 5 tool stations in the machine!

The ps:<sup>®</sup>multi-thread<sup>®</sup> is made with 6 positions. These positions can be equipped with thread form units with measurements from M2,5 (and UNC #2-56) to M10 (and UNC 3/8“-16). The changing of the used thread formers is extremely simple and completes the perfection of the „ps:<sup>®</sup>multi-thread<sup>®</sup>“.

**Economy effect:** Tool changing time!

The changing time of two thread sizes is only 1 second.

The most economy effect can be seen in the time-saving production of threads. A planetary gear wheel in the tool enables a high turning speed at the thread former and thus enables a productivity up to 30 threads per minute. The transmission ratio is  $i = 1:5$ .

**Economy effect:** Production time!

The stress for the Index-drive motor can be decreased through the gear transmission ratio.

**Economy effect:** Wear & Tear!

The ps:<sup>®</sup>multi-thread<sup>®</sup> can be used for sheet-thicknesses up to 8 mm (depends on thread size). Thread forms will be covered without additional changing efforts. The automatic select-function of the single position in the tool allows the use of the ps:<sup>®</sup>multi-thread<sup>®</sup> within a fully automatic production process.

**Economy effect:** Process of changeover!

The automatical lubrication of all guide elements in the tool and the lubrication of the thread formers during the forming process are additional special characteristics of the ps:<sup>®</sup>multi-thread<sup>®</sup>.

### Overview of customers' advantages:

- different sizes of thread modules possible: up to M10 respectively UNC3/8“-16
- fast and easy changing of thread modules
- possibility to use thread modules in metric and inch simultaneously in one equipment
- fast production of threads within  $\varnothing 2$  sec./thread
- up to sheet thickness of 8 mm (also Stainless Steel) useable
- with lubrication for tool and sheet
- automatic selection of single position of thread modules
- also useable for extrusions up- and downwards

### RESULT:

Efficiency, cost-savings, optimizing of set-up time and speed are the characteristics of this patented tool. An absolutely „MUST HAVE“ for efficient production of threads.

# ps:<sup>®</sup>clean-cut

FOR MACHINE TYPE THICK TURRET - STATION D

- new punching technology: shavings will be guided through the die and will be separated into pieces with second slitting unit
- max. operating safety by simple programming
- max. use of material as punching next to sheet edge (up to 2 mm) possible
- continuous slitting without witness marks (no back-hit necessary)
- increasing of productivity as no manual deburring is necessary
- useable for  
Aluminium up to s = 2,0 mm  
Steel up to s = 1,5 mm  
Stainless Steel up to s = 1,2 mm



patented  
EP 2,794,142

12/2011

# ps:<sup>®</sup>clean-cut

## FOR MACHINE TYPE THICK TURRET - STATION D

Slitting perforations without undesired nibbling marks are possible with the slitting tool - **ps:<sup>®</sup>clean-cut** - developed by PASS Stanztechnik AG. This solution is not only possible on TRUMPF machines, but also now on THICK TURRET punching tool systems.

Undesired nibbling marks occur with standard conventional slitting tools. For producing long slitting lines these nibbling marks can be prevented by making a continuous shear slitting in a series of hits. In the first action of the tool the punched material will remain attached.

During the process of cutting long slitting lines a shear style cutting action is used, which will result that the punched material will be punched free at the side but remains as a sheared part on the sheet.

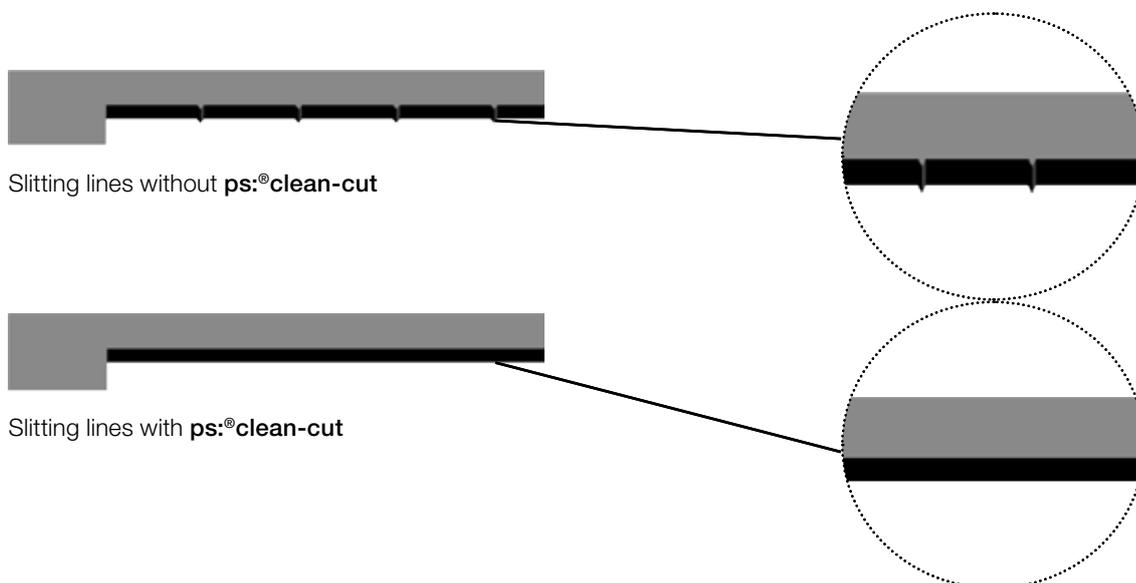
The punched material is bent down with the **ps:<sup>®</sup>clean-cut** and will be transferred into a second section of the die where a separate shear cuts the material into a small slug.

The sheared slugs will be transferred directly through the die. Only at the last hit of the slitting line the cutting tool will immerge deeper and cuts the remaining material completely from the sheet at the desired position.

The **ps:<sup>®</sup>clean-cut** can be used on all THICK TURRET tool systems, regardless of the machines manufacturer. It works without additional software, does not need any clearing procedures of the control system and will be easily programmed as a conventional punching tool. The only difference is the setting of the punching depth at the last cut of the slitting line. There are no safety concerns if a mistake arises in the programming regarding the punching depth which will result in a nibbling mark.

The result of **ps:<sup>®</sup>clean-cut** can be assured in its operational safety due to simple programming. The tool works progressively forward without time-wasting back-hits to complete the process. The slitting is possible up to 2 mm near the sheet edge.

The **ps:<sup>®</sup>clean-cut** can be used for Aluminium sheets up to 2 mm, Steel up to 1,5 mm and Stainless Steel up to 1,2 mm. The cuts on all THICK TURRET punching machines can be compared with laser quality, without the oxide layer, typically associated with laser cutting.



# ps:®MT8RiA-12,7

## 8-STATION MULTITOOL FOR MACHINE TYPE THICK TURRET

- simple and quick change of punch inserts, with maximum process stability
- minimum tool and guide wear, due to single-pressure-operated punch inserts and max. guide length
- internal and external lubrication channels
- special spring to control grind life after sharpening punch inserts
- no "witness-marks" on the sheet, due to single active punch – all unused punches stay up
- individual adjustment of stripping force
- maximum sheet thickness of up to  $s = 6$  mm mild steel and  $s = 3$  mm stainless steel
- possibility to use standard-inserts from product-line ps:®beta-V2®



patented  
EP 2,596,878  
US 9,266,248

11/2011

# ps:®MT8RiA-12,7

## 8-STATION MULTITOOL FOR MACHINE TYPE THICK TURRET

The PASS-Multitool for CNC punching machines was developed to work reliable in sheet thicknesses up to 6 mm. Due to our unique design the inserts are fully guided within the full length of the tool resulting in an increase of the lifetime up to several hundred thousand more hits. The design also assures a simple and quick change of the inserts with maximum procedure security. For more than 30 years Multitools are known as a flexible solution for CNC punching machines. The necessary flexibility for an automatically working without manual tool changes is established on the rotating station of the punching machines.

There is no problem for conventional Multitools to work with thin sheets, BUT when used with thicker materials: Steel from 3 mm, Alu from 6 mm and Stainless Steel from 2 mm thickness and up will prove to be a lifetime-killer: a standard and basic design the center force application and excentric aligned tools provokes alignment issues of the inserts. Users report this on high stripping forces and early wear of the guides at punching forces up to 300 kN.

The tool designers of PASS Stanztechnik AG optimised on the one hand the distribution of forces within the Multitool with the clever devised design. On the other hand the best possible guide ratio at the punches is provided. Eight punching springs are arranged in the upper part of the tool and replace the previously conventional center stripping spring in the bottom of the tool. The quantity and the forces of the springs can be varied individually for adjustment of special applications.

The arrangement creates space in the bottom of the tool for optimized holding and guide design for each individual punch insert. All punches are held axial on a rotating punch holding plate. Only the active punch will move axial through the hole of the punch holding guide. Through this hole the punch will act individually from the activity pin. For activating and positioning, the tool head and tool bottom are screwed against each other.

The difference to the conventional Multitool designs can be found in the design of all non-active punches which remain stationary up in the tool. The result for the active punch is a stabilized guide ratio from punch diameter to guide length to a dimension of 1:3. The guide ratio for conventional designs with a common guide and movement of all tools in one holder shows a disadvantageous value of 2:1.

The design of the **ps:®MT8RiA-12,7** enables a simple and fast change of the inserts. For this reason the screw in the upper part must be loosened. The hole of the punch holding plate will need to be rotated to the desired insert which needs to be changed. After removing the punch the "clicked" stripper plate located at the bottom of the tool can be removed.

A control tool simplifies the adjustment of insert after the insert has been resharpened. A control-spring is placed in the center of the upper part of the tool which will be pressed against the block by manual operation of the Multitool. The insert at this position can easily be measured and adjusted to the value of the useable tool length. This is a quick and simple way all users already working with this tool appreciate! The tool is also equipped with a central lubrication.

The 8-Station Multitool **ps:®MT8RiA-12,7** for machine type THICK TURRET can be used for alu sheets (0,4 - 6 mm), for steel with an tensile strength of 420 N/mm<sup>2</sup> (0,5 - 4 mm) and Stainless Steel (0,5 -3 mm).

One exceptional point: the tools gives the possibility to use the standard-inserts of product-line **ps:®beta-V2®** in order to prepare and use the machine much more flexible.

The product range of ps:®multitools was extended with the 3-Station Multitool **ps:®MT3RiB-31,75**.

In comparison with the **ps:®MT8RiA-12,7** six instead of eight springs are arranged in the upper part of the **ps:®MT3RiB-31,75**. The maximum diameter of Ø 31,75 gives the chance to make big shapes. The dimensions of the punch can be covered by the punches of the tooling system THICK TURRET.

## PRODUCT INFORMATION

# ps:®beta-V2®

## FOR MACHINE TYPE THICK TURRET

- assembled spring unit
- tool length can be adjusted by simple, quick and safe handling
- optional available as ABS-version (for machines with lubrication system)
- easy adjustable regrinding length to 9,5 mm ( $s = 1,0$  mm), without using compensating shims
- replaceable stripper plate
- closed, solid head unit made of **metal** secures highest obtainable reliability of operation in case of spring breakage



patented  
EP 2,414,114  
US 8,616,107

# ps:®beta-V2®

## FOR MACHINE TYPE THICK TURRET

PASS developed with the **ps:®beta-V2®** one tooling system for THICK TURRET punching machines.

The system is characterized by a simple, quick and safe handling, a tough assembly and an extremely short set-up time.

The **ps:®beta-V2®** consists of a tightened head-spring-unit, one punch guide independent of the form, and the wear and tear parts "punch body and stripper plate".

This means that the tool can be modified to other contours within a very short time by changing only the punch and the cost-efficient stripper plate.

The length adjustment of the punch as well as the changing of the stripper plate will be carried out „at a push of a button“. A secure and exact length adjustment can be guaranteed by using the integrated snap valve. The stripper plate can be disassembled in the same way.

The **ps:®beta-V2®** can also be delivered for machines with grinding device (ABS). It has to be emphasized that the head-spring-unit keeps also the same but with a hole channel for the lubrication system.

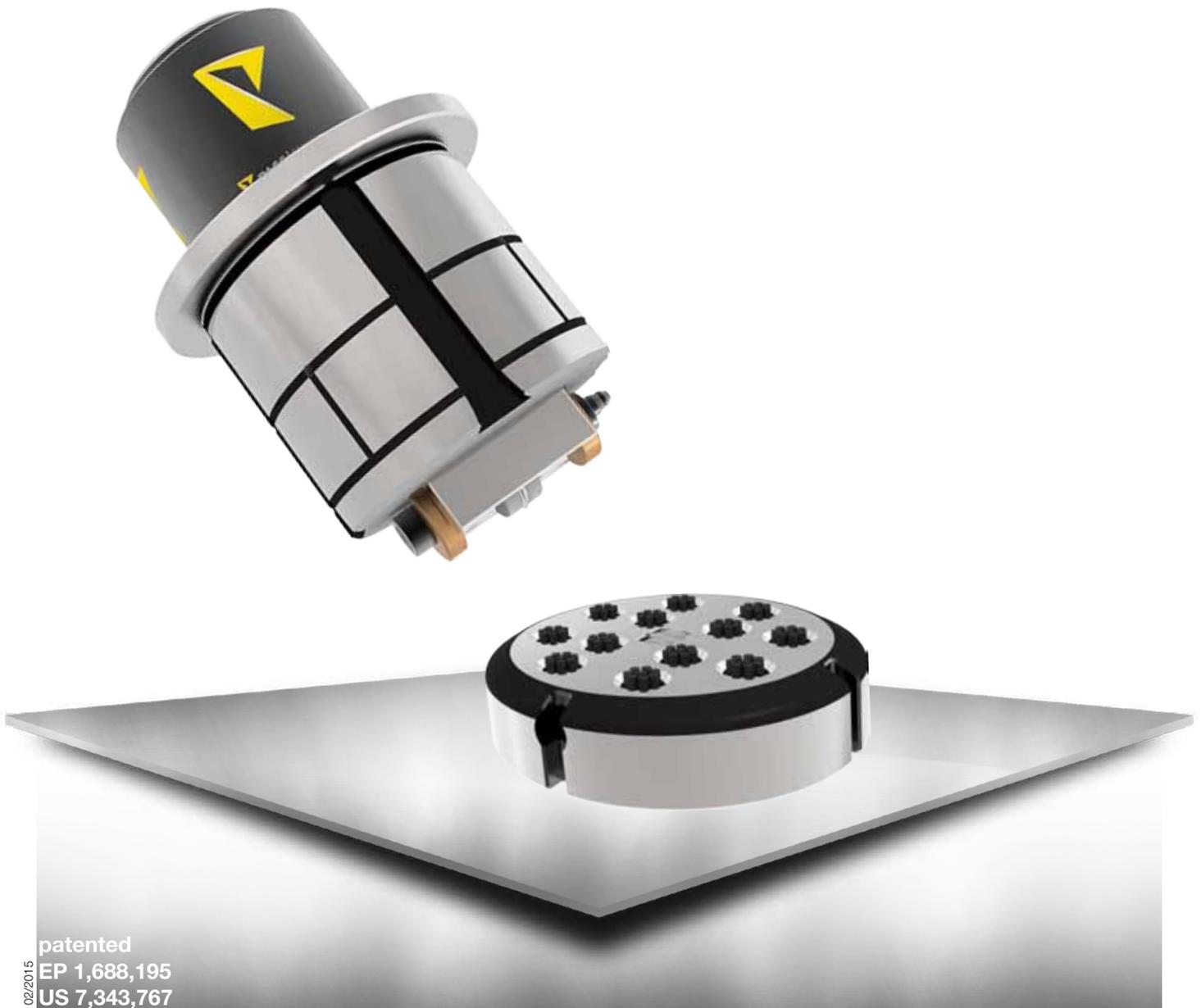
### Technical data:

- useable for all machines with tooling system „THICK TURRET“
- available for tooling stations A, B, C, D und E
- punch length adjustment by turning the assembled spring unit
  - adjusting range at station A: per one turn 1,2 mm / per klick 0,15 mm
  - adjusting range at station B, C, D und E: per one turn 1,6 mm / per klick 0,2 mm
- secure locking by snap valve mechanic (with springs)
- for sheet thickness up to 6 mm
- 9,5 mm regrinding length (calculated for sheet thickness 1,0 mm)
- changing stripper plate
  - Stat. A+B by radial insertion
  - Stat. C, D and E by axial clipping (with pins for simple removal)
- also available for machines with grinding device
- useable up to 400 kN punch force due to a solid construction
- hardened and polished punch guide
- closed, solid head unit made of **metal** secures highest obtainable reliability of operation in case of spring breakage

# ps:<sup>®</sup>wheel

FOR MACHINE TYPES TRUMPF, THICK TURRET & SALVAGNINI

- for different sheet type and thickness
- for different range of applications:  
(e.g. Beading-, Flange or Offset-Tool)
- reduced warpage because of  
differential effect (segmented wheels)
- no chatter marks
- integrated lubrication
- working with close radius possible
- perfect operating characteristic due  
to the inserts coated with a special  
lubrication
- measurements on customer's request,  
e.g. for beads possible



patented  
EP 1,688,195  
US 7,343,767

02/2015

ps:®wheel

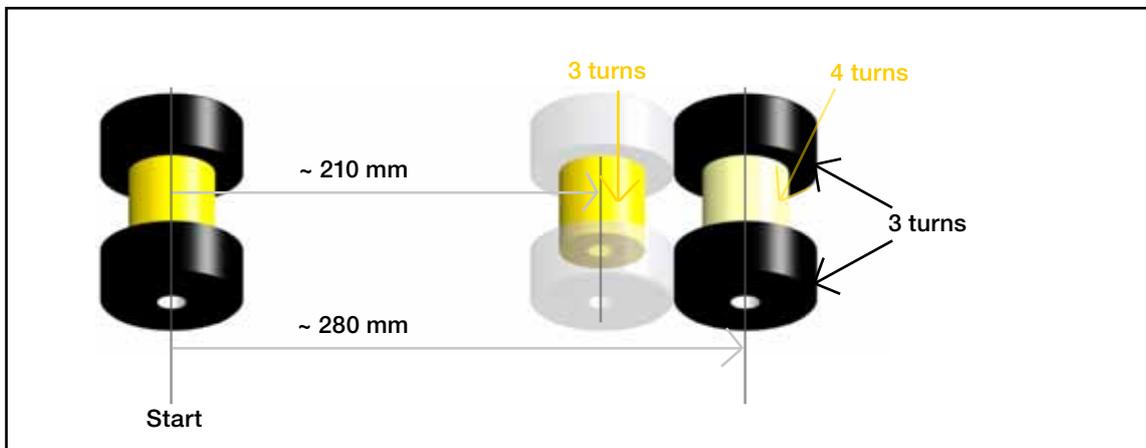
FOR MACHINE TYPES TRUMPF, THICK TURRET & SALVAGNINI

Wheel tools from PASS are specific:

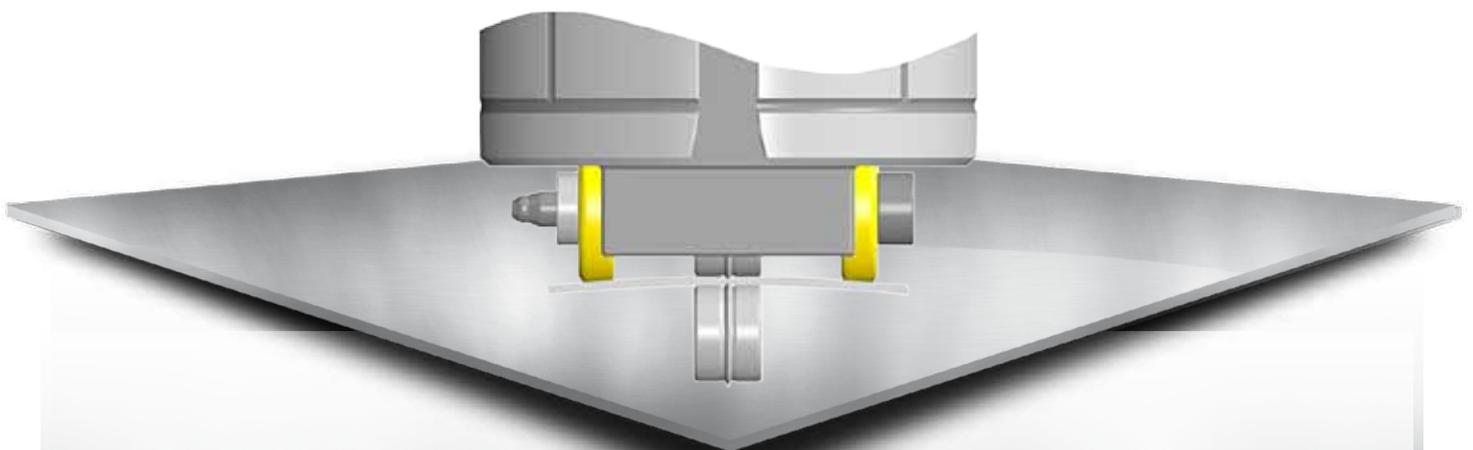
The operation of our patented segmented wheels offers enormous advantages.

Due to each wheel operating individually each wheel maintains the best rotation speed and contact with the sheet without interfering with the other wheel. The result of this design is much less friction which in turn greatly reduces sheet warpage. Segmented wheels are standard at PASS!

This unique design regarding our “differential” technology increases the longevity of the tool. of course all of our ps:®wheels tools are supplied with our special integrated lubrication system and special coated wheels. This allows the smooth running and operation characteristic of all ps:®wheel tools.



But it doesn't stop at that: fine tuning is also possible by using additional setting wheels – normally in the upper part of the tool. Warpage will also be decreased with this method.



patented  
EP 1,688,195  
US 7,343,767

# ps:<sup>®</sup>speed-grinder

**Features:**

- Touchscreen
- automatic door opening and closing
- 5 different grinding cycles programmable
- automatic fine adjustment by laser
- laser workpiece height control
- rotating table
- grinding area illuminated by LED light
- grinding area made of stainless steel
- double coolant filtration
- coolant spraying gun
- easy handling

- high speed grinding
- fastest machine on the market
- Industrie 4.0 inside

**Field of application:**

- The **ps:<sup>®</sup>speed-grinder** was specifically designed to sharpen tools (punches and dies) used in all common punching machines. The height of the workpiece is measured by a laser.

**Characteristic:**

- The angle of the rotary table is capable of infinite adjustability from 0 – 5 degrees, thus it is easily to obtain the different grind angles of the work piece. Clamping units for different tooling systems are available.



## Technical Data

▪ Motor		3,3 kW
▪ Spindle speed		2850 min <sup>-1</sup>
▪ Power connection		4 kW
▪ Grinding wheel		
	CBN	Ø 200 mm
▪ Rotary table		
	Diameter	Ø 280 mm
	Speed	30 min <sup>-1</sup>
	Inclination	0 - 5°
▪ Grinding height (beginning from table)		250 mm
▪ Fine adjustment		
	Range	250 mm
	min. step	5 µm
▪ Weight		430 kg
▪ Required space		600 x 600 mm

## ps:® speed-grinder

As you certainly know from your experience, when you need a tool for that last minute punching job, you find your tool is dull. When there's no time waiting for a new tool, you will need to sharpen the one you have just to complete your production job.

Therefore we developed the fastest and most effective grinding machine designed especially for punches and dies for you in order to avoid such long lead-times.

### POWER:

The motor of our „ps:®speed-grinder“ works with 3,3 kW which is the most powerful grinding machine

### FIELD OF APPLICATION:

The ps:®speed-grinder was specifically designed to sharpen tools (punches and dies) used in all common punching machines. The height of the workpiece is measured by a laser or alternatively through a mechanical device.

### FINANCING:

We assist you in financing your new grinding machine ps:®speed-grinder.

We can arrange a leasing offer for you together with our financial partner UniCredit Bank.

## ps:® quick-adjust-vise

- quick-release system for exact and time-saving clamping of punches
- accurate adjustment of angles by using a magnetic pocket level
- process safety by grinding the whisper punches
- easy adjustment of angle for whisper punches by excentric wheel
- accurate regrinding of the whisper shear over the corner by using an adjustment ring and alignment keys in the top of the sinus copensator



## PRODUCT INFORMATION

# ps:<sup>®</sup>shear-blades

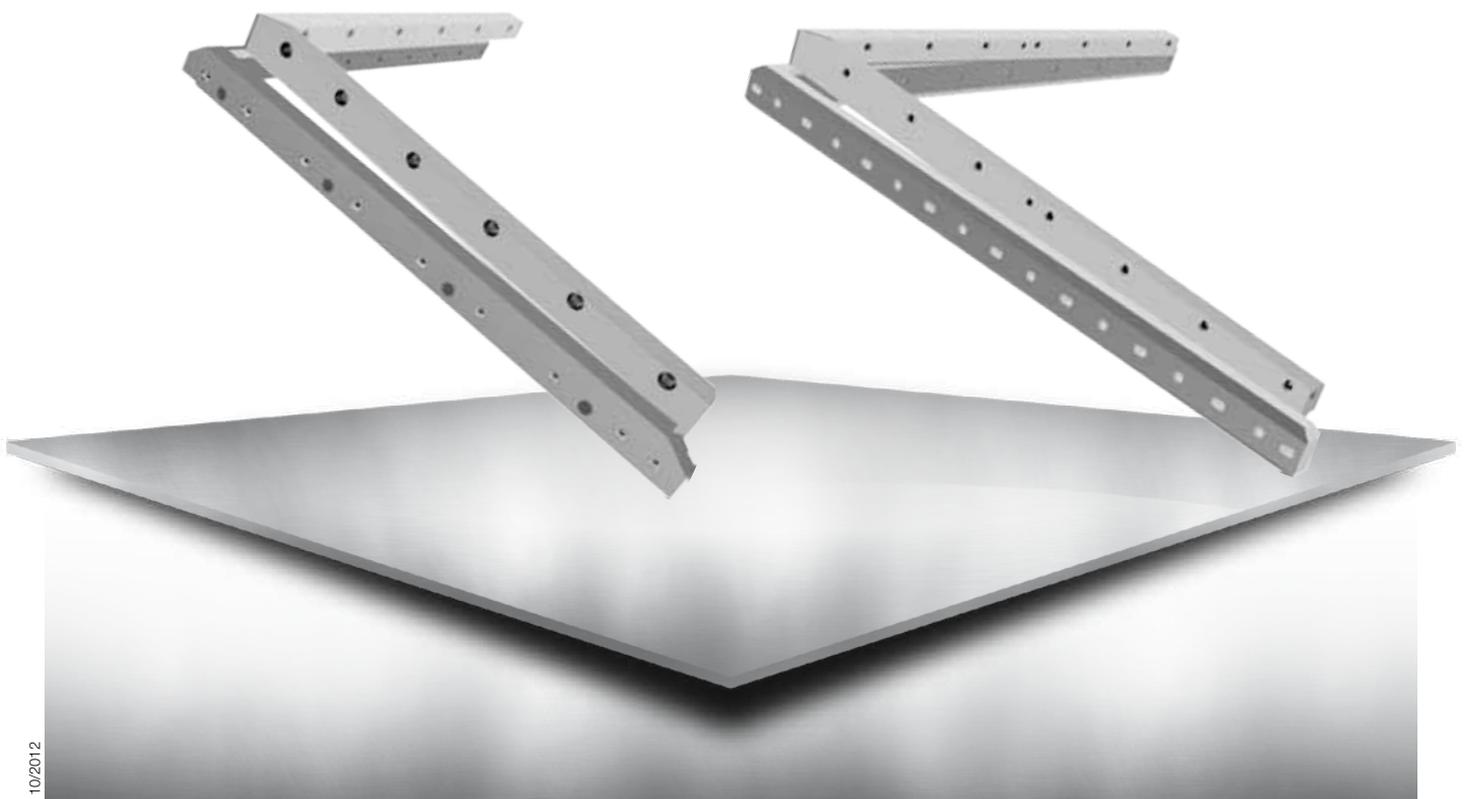
FOR MACHINE TYPE SALVAGNINI

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- made of highest X3-PM quality which increase the life-time

■ 400 mm

■ 500 mm



10/2012

# TOOL-CASSETTES

FOR MACHINE TYPE SALVAGNINI S4

■ cassette for 260 kN  
(type 70 mm)

■ cassette for 260 kN  
(type 90 mm)

■ cassette for 70 kN  
(type 33 mm)



# LIFE-TIME OF TOOLS / REGRIND ADVICES

TOOLING SYSTEMS AMADA, PRIMA POWER, EUROMAC, TRUMPF, SALVAGNINI

„We have 120.000 hits to punch in a stainless steel with sheet thickness of  $s = 3$  mm. How many punches do we need?“

OR

“What is the operation time expected for nibbling aluminium sheet with sheet thickness of  $s = 1$  mm?“

OR

“At what quantity of hits should we regrind our tools?“

These kind of questions come to us daily for many years.

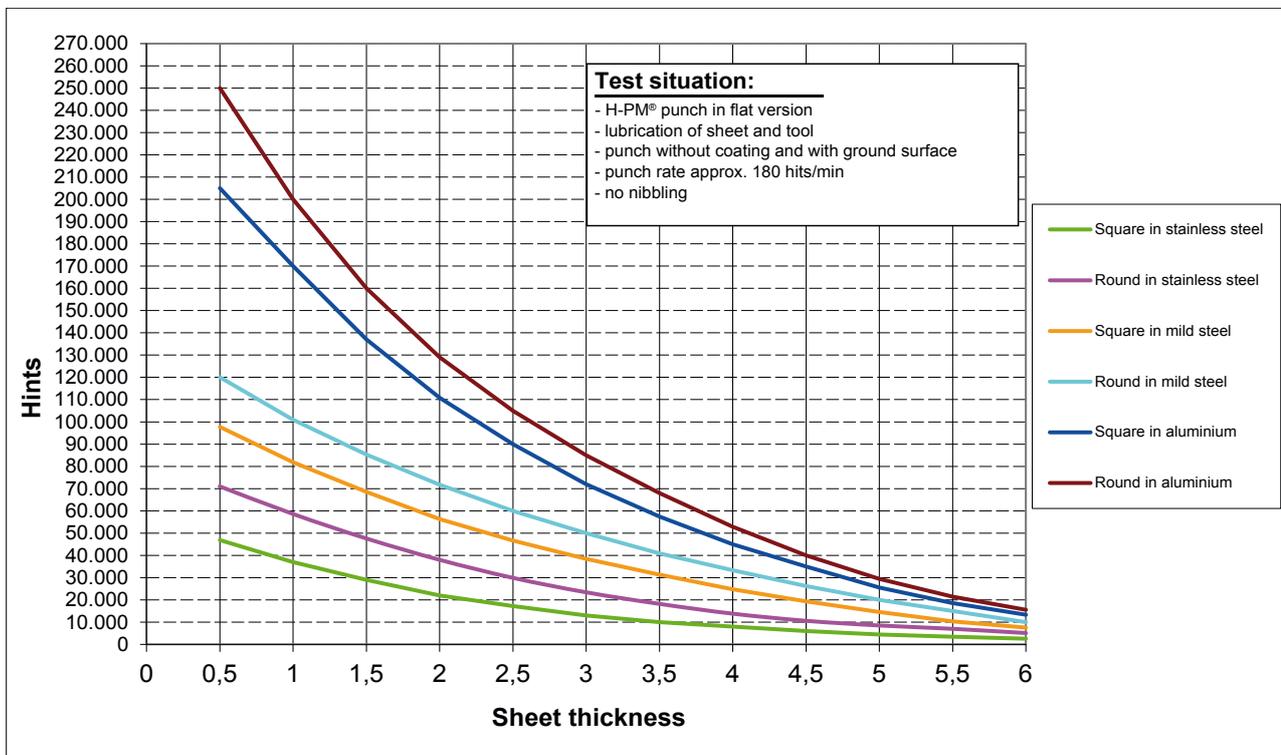
Unfortunately the answers to all these questions are not easy to make as a lot of different factors have to be observed.

For approximately 30 years we collected technical information from our customers which allows references to be made for operation times of tools and regrinding times. Today we place this collected data at your disposal with the purpose to facilitate the estimated tool life.

The following chart is compiled by indicating the recommended regrind after the relevant quantity of hits as there will be a difference for the regrind of the different machine types (tooling system).

The chart, however, should clarify as well that the punching process contains a big variety of influencing factors affecting possibly more or less the increase or decrease of the punching hits.

A precondition by using this data is preconditioned and optimal adjusted punching machine with a solid C- or O-frame.



# LIFE-TIME OF TOOLS / REGRIND ADVICES

TOOLING SYSTEMS AMADA, PRIMA POWER, EUROMAC, TRUMPF, SALVAGNINI

## EXPERTISE:

An average decrease of the tool life of 5-10% per regrind has to be taken in account for the first regrind.

INFLUENCING FACTORS	FACTOR
zinc coated sheet / stainless steel with foil / aluminium anodized	0,5 - 0,8
no sheet-lubrication	0,4 - 0,6
punch coating (TICN for stainless steel / T-MAX for zinc coated steel / A-Max for aluminium / C-Max for copper)	2,0 - 4,0
PASS-X3-PM punch	6,0 - 10,0
nibbling	0,7 - 0,9
corner-punching	0,5 - 0,7
Whispertool	0,8 - 0,9
punching rate > 300 hits / min	0,8 - 0,9
cutting part with EDM surface	0,4 - 0,8
cutting part with polished surface	1,5 - 3,0
cutting part smaller than 1,5x sheet thickness	0,6 - 0,8
cutting part smaller than 1,0x sheet thickness	0,3 - 0,5
using too close radius	0,4 - 0,9

**PASS Stanztechnik AG offers a grinding service.** For this reason please contact your contact partner at PASS. We are able to grind all your punching tools from a punching needle up to Cluster Tools for all tooling systems.

Your punches will be grinded fast, professional, reliable and effective in order to get a good and sustainable punching result.

Please take in mind: only sharp tools will ensure good end products!

## SHEAR TYPES

TOOLING SYSTEMS AMADA, PRIMA POWER, EUROMAC, TRUMPF, SALVAGNINI



SALVAGNINI | THICK TURRET | TRUMPF



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