SCHRÖDER GROUP

SHEET METAL WORKING MACHINES

Industrial sector

Sheet metal folders for the industrial sector

MAK 4 Evolution UD

EVO Center

SPB Evolution UD

EVO DuoBend

PowerBend Industrial UD

EVO Heavy Duty

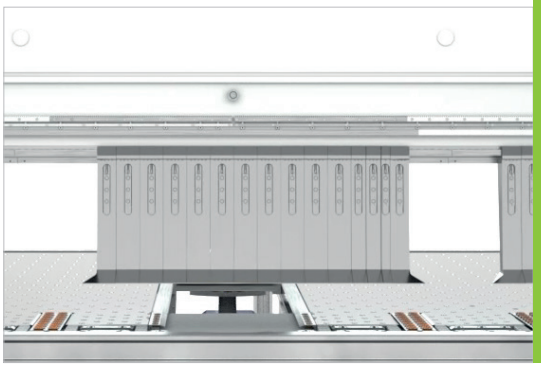
Better sheet metal working – we have dedicated ourselves to enabling highest quality standards and efficient processes in the production of sheet metal products. This brochure can only give you an initial overview of our machines designed for thick sheet metal applications up to 16 mm steel sheet – we are pleased to offer you our advice to selecting a suitable machine for your requirements.

More than 75 years of sheet metal working

Since more than 75 years Hans Schröder Maschinenbau GmbH specialized in the development of modern machine concepts for bending and cutting sheet metal for craftsmen and for industrial production processes. The family owned company founded in 1949 by Hans Schröder unifies traditional and modern approaches in machine building: technical competence and high commitment to innovation, intensive quality- and service orientation, the work for and with the customer as well as a trusting cooperation with suppliers and employees.

Note: All dimensions in mm, standard color machines: RAL 7035 light gray, RAL 5003 sapphire blue. Special painting against surcharge.

Graphic control POS 2000 Professional



Clamping beam tools

Working length ▸ / Sheet thickness (400 N/mm²) ▾	3,200	4,000	5,000
Folding machines			
3.00		SPB Evolution UD / EVO Center	
4.00	SPB Evolution UD / EVO Center	EVO DuoBend	MAK 4 Evolution UD
5.00	EVO DuoBend	MAK 4 Evolution UD / PBI UD	
6.00	MAK 4 Evolution UD / PBI UD		
16.00	EVO Heavy Duty		

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Folding machine MAK 4 Evolution UD

The MAK 4 Evolution UD is our solution for complex tasks involving industrial sheet metal working – powerful, precise, and extremely efficient.

MAK 4 Evolution UD			
Work. length x Sheet thickn. (400 N/mm²)	3,240 x 6.0 mm	4,040 x 5.0 mm	5,040 x 4.0 mm

Optional fully-automatic tool changer for clamping beam tools for max. tool height 500 mm

The MAK 4 Evolution UD combines the Schröder groups' many years of experience in sheet metal folding with pioneering innovations: precise linear drive, graphical programming, and an automatic tool changer.

With the MAK 4 Evolution UD you are able to work more productively thanks to the „up-and-down" technology. All of this opens up new opportunities to your company for processing sheet metal – for faster, more flexible production and reduced costs per unit.

The MAK 4 Evolution UD enables you to turn your customer's increasing demands in quality, flexibility, and speed into competitive advantages for your company. No matter whether complex sheet metal forming needs to be particularly precise, short-notice individual orders need to be managed reliably, or pieces of sheet metal need to be processed quickly and efficiently for standard products, the MAK 4 Evolution UD makes it all possible.

Up-and-down technology reduces processing times

Minimize handling costs at the machine and trust Schröder's proven "up-and-down" technology. More processing steps in shorter times.

Standard equipment	
Software control	– POS 3000 3-D graphic control with touchscreen on swivelling arm – Radius function – Remote maintenance
Clamping beam	– Clamping beam stroke: 1090 mm – Clamping beam geometry: 180° – Hydraulic tool clamping device (WZS 5000)
Folding beam	– Up'n Down folding beam, automatically controlled – Pneumatic tool clamping device (WZS 7000) – Motorized folding beam adjustment: 180 mm – Motorized folding center adjustment: 100 mm – Motorized central crowning device – Center point adjustment, converter-controlled drive
Back gauge	– Back gauge table 1700 mm as U-shape, segmented support plates with steel balls – Lateral angle gauge right and left side 1500 mm (outside) – Suction plates in gauge table, controlled via POS 3000 – 2 pneumatic pop-up square arms assembled aisle side, program-controlled – Gauge axis in front
Safety	– Protection via light barrier controlled by safety-PLC for operation from the rear – Safety package for operation from the front incl. 2nd foot switch on rail for lateral movement (in combination with tool changer clamping beam no operation from the front possible)
Others	– Standard machine without tools – Foot switch – Anchor plates incl. dowels

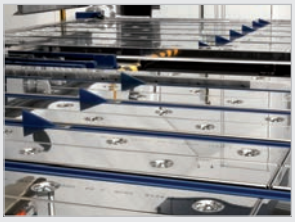
Special equipment	
Clamping beam	– Fully automatic tool changer (WSZ 6010) with a hydraulic tool clamping device (a total of 8 axis) for max. tool height of 500 mm (without toolings), two asynchronously movable tool changers with one gripper unit each ▪ incl. safety fence with lateral access door ▪ incl. air conditioner on both switch cabinets ▪ Central lubrication, program-controlled via POS 3000
Folding beam	– Additional option, automatic tool changer for folding beam tools with pneumatic tool clamping device WZS 7200 incl. incl. two tool magazines and one folding beam tool set
Back gauge	– Side table left or right, sheet support table closed with ball rollers (see graphic p.7) – Pneumatically lowerable gauge fingers (2 sectors 850/1700 mm) – Back gauge extension right and/or left with pneumatically lowerable gauge fingers (balls in table), combinable with side table
Safety	– Additional equipment for 2-man-operation control in accordance with accident prevention rules required
Others	– External programming (PC-Version) – Voltage transformer 52 kVA – Air conditioner on both switch cabinets – Tool options see p. 28-29

Dimensions and technical data

Bottom beam blade with finger grooves

Drives, tools, stops - quality can be seen in every detail.

MAK 4 EVOLUTION UD	3200 x6.0	4000 x 5.0	5000 x 4.0
Working length (a)	3,240 mm	4,040 mm	5,040 mm
Sheet thickness (400 N/mm²)	6.0 mm	5.0 mm	4.0 mm
Machine length (b)	6,418 mm	7,218 mm	8,218 mm
Back gauge (c)			
U-3400	5,310 mm	-	-
U-4250	-	6,160 mm	-
U-5100	-	-	7,010 mm
Weight without back gauge	ca. 22,000 kg	ca. 23,500 kg	ca. 26,000 kg
Clamping beam			
Geometry	180°	180°	180°
Stroke	1090 mm		
Drive power	2 x 9.45 kW	2 x 9.45 kW	2 x 9.45 kW
Speed	100 mm/sec	100 mm/sec	100 mm/sec
Folding beam			
Adjustment, motorized	180 mm		
Drive power	2 x 9.42 kW	2 x 9.42 kW	2 x 9.42 kW
Speed	150°/sec	150°/sec	150°/sec
Folding center adjustment	100 mm		



Back gauge system

We supply you with back gauge and table options that fit your requirements. Sheet support tables with balls make handling easy and gentle on the material. The pneumatically lowerable angle gauges on the left and right of the aisle are suitable for folding long, thin sheets at exactly the right angle.

Suction gauge controlled via POS 3000

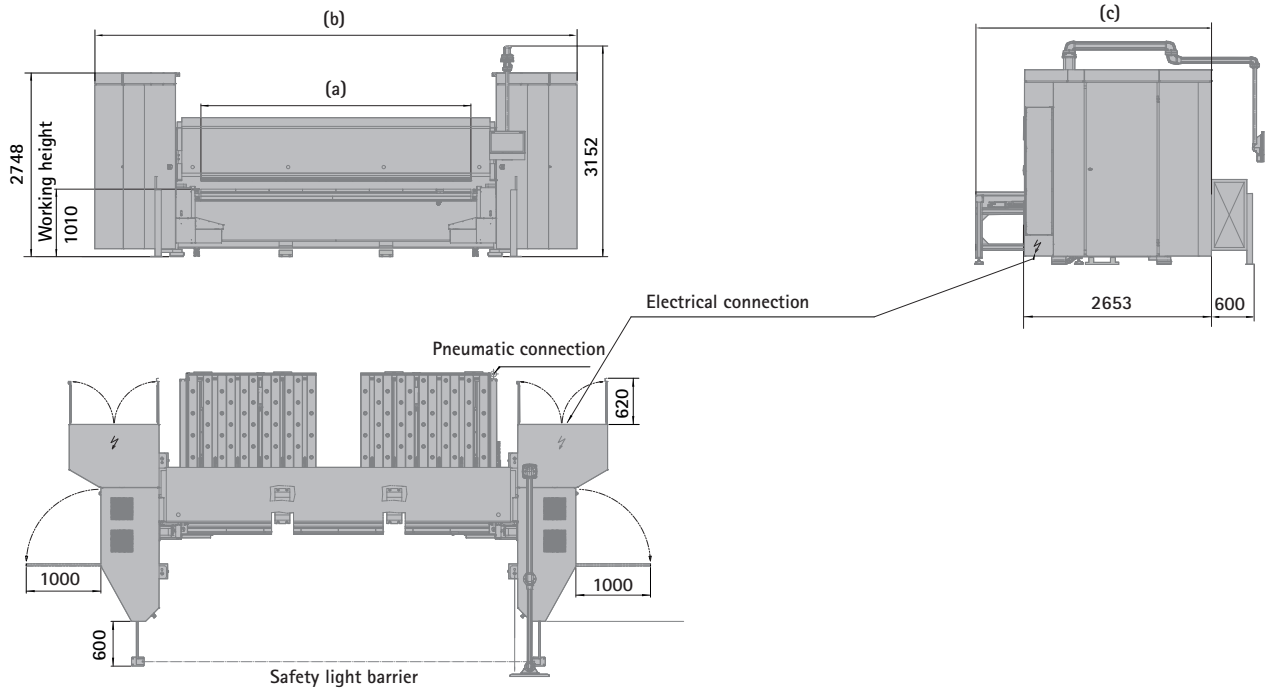
Suction plates in the back gauge table enable pneumatic fixation of the workpiece. The suction gauge grips where gauge fingers cannot find a reliable hold, because the workpiece has curves or recesses on the gauge side, for example.

Fast and safe setup with POS 3000

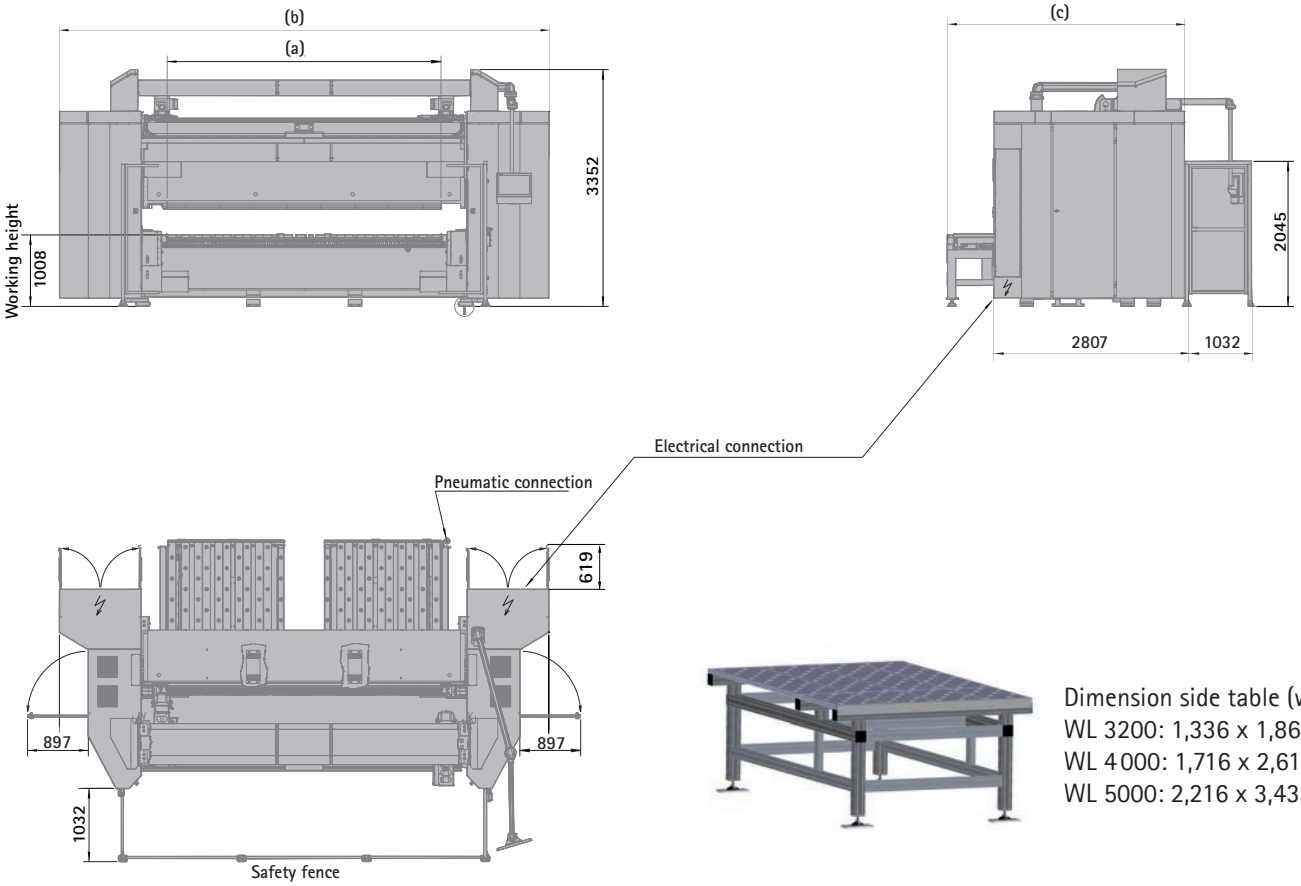
The MAK 4 Evolution UD can be equipped with a fully automatic tool changer. The clamping beam and optionally also the folding beam are equipped with tools in a matter of seconds. Two rotary units, each moved by high-precision linear drives, use a gripper unit to remove tools from the magazine and position them in the tool changer or remove the existing ones.

- 3D graphic control with schematic representation of machine, tool and workpiece
- Intuitive, visual touch-screen programming
- 3D bending simulator for visual program control
- Automatic setup programming and control of the tool changer
- Cycle time calculator
- CAM connection, ERP/PPS interfaces and DXF converter
- Options: PC-Version, Unfold software „SCHRÖDER Unfold“

Dimensions: MAK 4 Evolution UD without tool changer



Dimensions: MAK 4 Evolution UD with tool changer



Dimension side table (wxd):
WL 3200: 1,336 x 1,864 mm
WL 4000: 1,716 x 2,614 mm
WL 5000: 2,216 x 3,433 mm

Folding machine EVO DuoBend

The innovative EVO DuoBend double-folderis used in sheet metal processing industrial plants and offers the perfect solution for the production of large-format products with counterbends.

EVO DuoBend		
Work. length x Sheet thickn. (400 N/mm²)	3,240 x 5.0 mm	4,040 x 5.0 mm

On request: EVO DuoBend without tool changer with hydraulic tool clamping.

Thanks to the two folding beams the machine is able to bend a large number of counterfolds one after the other. The prime example of such workpieces is a customer-specific trapezoidal sheet.

EVO DuoBend with two folding beams

The new motorized folding machine EVO DuoBend owes its name „DuoBend" to its two independently operated folding beams. With the EVO DuoBend, the Schröder Group is once again increasing its flexibility in the area of sheet metal folding many times over: Products for container construction, vehicle construction or conventional folding applications, such as heavy sheets with counterbends, can be manufactured efficiently.

The machine can also be used by large contract manufacturing companies. It can be purchased in the working lengths 4040 mm for sheets up to 4 mm thickness or 3200 mm for sheets up to 5 mm thickness.

The two folding beams of the EVO DuoBend enable a highly efficient motion sequence:

A positive bend is performed by the bottom folding beam and folding of a negative bend by the top folding beam. This eliminates the need to bypass product sides that have already been bent, which means that there are no longer any restrictions due to the maximum bypass radius of less than 200 mm. The time saved when changing from up to down or down to up bending results in a shorter cycle time.

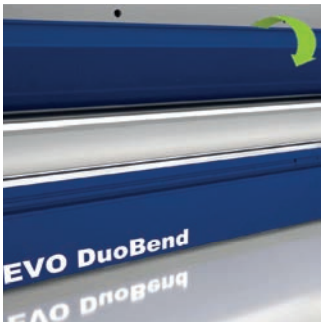
The workpiece is processed during the entire folding process without a machine operator as the operator only has to position the product once at the beginning. This significantly reduces the error rate by the operator. The high bending quality is supported by the motorized crowning on both folding beams, which contributes to a straight bending result.

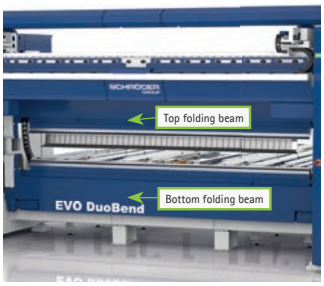
Standard equipment	
Software control	– POS 3000 3-D Graphic control on swivelling arm – Radius function – Remote maintenance via Internet – External programming (PC-Version 1. Licence)
Clamping beam	– Clamping beam stroke: 850 mm – Clamping beam geometry: 180° – Fully automatic tool changer WZS 6500: for clamping beam tools with a hydraulic tool clamping device (a total of 8 axis) for max. tool height of 500 mm, two asynchronously movable tool changers with one gripper unit each
Folding beam	– Two folding beams, program-controlled – Mechanic tool clamping device (screwed) (WZS 19000) – Motorized folding beam adjustment 150 mm – Motorized folding center adjustment 370 mm – Motorized central crowning device in both beams
Back gauge	– Gauge table 1700 mm as U-shape divided support plates with steel balls – Lateral angle gauge right and left side 1500 mm (outside) – Suction plates in gauge table, controlled via POS 3000 – 2 pneumatic pop up square arms assembled aisle side, program-controlled – Gauge axis in front
Work safety	– Protection via light curtain controlled by safety-PLC for operation from the rear – Safety fence with lateral access door
Others	– Standard machine without tools – Working height 1160 mm – Foot switch, anchor plates incl. dowels, decentralized lubrication system – Air conditioner on both switch cabinets

Special equipment	
Back gauge	– Side table left or right, sheet support table closed with ball rollers – Pneumatically lowerable gauge fingers (2 sectors 850/1700 mm) – Back gauge extension right and/or left with pneumatically lowerable gauge fingers (balls in table), combinable with side table – Gripper gauge system: U-shaped table 2000 mm, movement range 150 - 2150 mm, 2 lateral moveable pneumatic grippers Additional gauge options: - 2 gauge fingers - 2 suction plates (gauge options cannot be used in combination) 2 additional side tables left and right, sheet support table closed with ball rollers to extend the table up to machine width
Safety	– Additional equipment for 2-man-operation control in accordance with accident prevention rules required
Software control	– SCHRÖDER Unfold software
Others	– Voltage transformer 52 kVA, Overseas packaging – Tool options, please see p. 30-31

Dimensions and technical data

Negative bend





EVO DuoBend with two folding beams

Positive bend

Cross section: clamping beam tools, bottom beam tools and folding beam tools of the upper folding beam

EVO DuoBend	3,200 x 5.0	4,000 x 4.0
Working length (a)	3,240 mm	4,040 mm
Sheet thickness (400 N/mm²)	5.0 mm	4.0 mm
Machine height with ATC	3,337 mm	3,337 mm
Machine length (b)	6,420 mm	7,220 mm
Back gauge (c)		
U-3400	5,310 mm	-
U-4250	-	6,160 mm
Weight without back gauge	ca. 27,500 kg	ca. 29,000 kg
Clamping beam		
Geometry	180°	180°
Stroke	850 mm	
Drive power	2 x 9.45 kW	2 x 9.45 kW
Speed	100 mm/sec	100 mm/sec
Folding beam (2x)		
Adjustment, motorized	150 mm	
Drive power	2 x 9.42 kW	2 x 9.42 kW
Speed	150°/sec	150°/sec
Folding center adjustment	370 mm	

Back gauge system

In its standard version the EVO DuoBend has a U-shaped 1700 mm sheet support table. This sheet support table with balls makes handling easy and gentle on the material. There are 1500 mm angle gauges on the left and right side of the table as well as pneumatically lowerable angle gauges in the aisle of the machine that enable exact positioning of the sheet.

Suction plates controlled via POS 3000 software

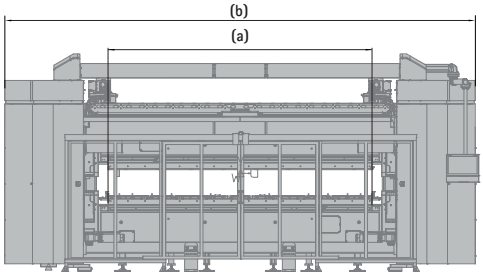
The basic version of the EVO DuoBend is equipped with suction plates in the gauge table. These enable pneumatic fixing of the workpiece: the sheet gets fixed pneumatically once and, thanks to the intelligent control system, all bends on one side run automatically and without further handling by the machine operator. **Optionally** you can increase the operating comfort with an additional gripper gauge. With two laterally movable pneumatic grippers, this gripper gauge offers you even greater safety when fixing heavy large-format sheets.

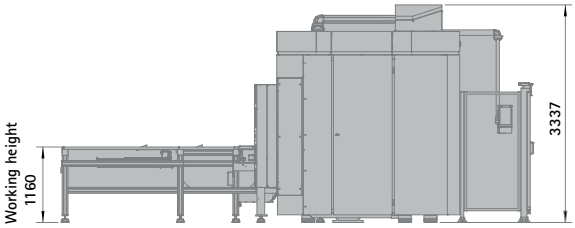
Fast and safe setup with POS 3000

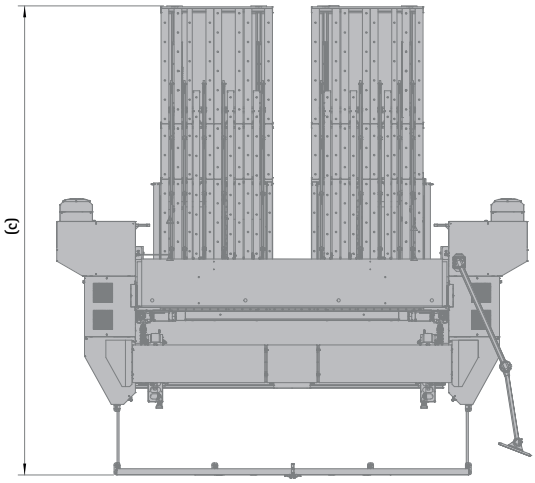
The EVO DuoBend is equipped with a fully automatic tool changer on the clamping beam, which can be set up with up to 500 mm high tools. Two rotary units, each moved by high-precision linear drives, use a gripper unit to remove tools from the magazine and position them in the tool clamping device or remove the existing tools. A clamping beam stroke of 850 mm enables four-sided boxes with a depth of 500 mm to be bent.

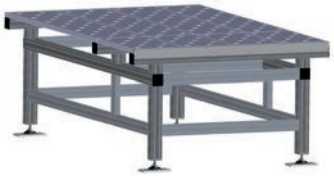
- 3D graphic control with schematic representation of machine, tool and workpiece
- Intuitive, visual touch-screen programming
- 3D bending simulator for visual program control
- Automatic setup programming and control of the tool changer
- Cycle time calculator
- CAM connection, ERP/PPS interfaces and DXF converter
- Options: Unfold software „SCHRÖDER Unfold“

Dimensions: EVO DuoBend









Dimension side table (wxd):
WL 3200: 1,336 x 1,864 mm
WL 4 000: 1,716 x 2,614 mm

Rear view EVO DuoBend

Folding machine EVO Center

The best premise for your top performance - A Schröder EVO Center is your industrial solution to achieve high volume as well as flexible serial production with extreme repeatability.

EVO Center		
Work. length x Sheet thickn. (400 N/mm²)	3,240 x 4.0 mm	4,040 x 3.0 mm

- Optimized for Industry 4.0
- Intelligent design
- Efficient production processes
- Utmost repeatability
- Large volume series production

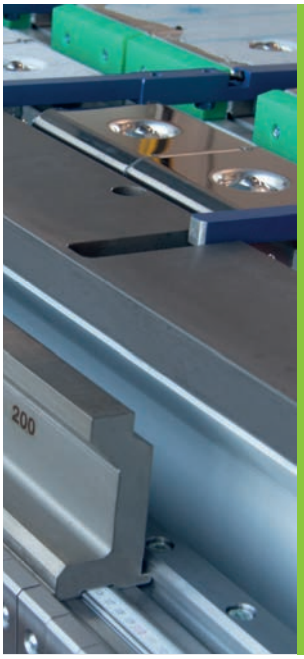
Based on our technology, our hardware and our software we have developed a folding machine that is able to process sheet metal in almost fully-automatic operation. The central core of the Schröder EVO Center is based on our long-term experience we have gained with our modern folding machines of the Evolution series.

Thanks to an intelligent set-up technique, the Schröder EVO Center can be used efficiently for serial production as well as for order-related production with fast changing small batches. A fully automatic tool changer equips the clamping beam quickly and accurately with tools. The tool changer and the handling system are driven by our intelligent software control POS 3000.

Standard equipment	
Software control	– POS 3000 3-D graphic control with 22" TFT touch-screen colour display movable via guide rail – Radius function – Remote maintenance – External programming (PC-Version 1st licence)
Clamping beam	– Z-axis drive max. axis speed: 120 mm/sec – Clamping beam geometry: 180° – Clamping beam stroke: 850 mm – Hydraulic tool clamping device (WZS 6010) – Fully automatic tool changer for clamping beam tools for max. tool height 400 mm, 2 asynchronously movable tool changers with one gripper unit each
Folding beam	– Up'n Down folding beam, program-controlled – Pneumatic tool clamping device (WZS 7000) – Motorized folding beam adjustment: 200 mm – Motorized central crowning device – Motorized center point adjustment, converter-controlled drive
Back gauge	- Gauge table 1700 mm as U-shape, divided support plates with steel balls - Lateral angle gauge right and left side 1500 mm (outside) - Suction plates in gauge table, controlled via POS 3000 - 2 pneumatic pop-up square arms assembled aisle side, program-controlled - Gauge axis in front
Drive	– Servoconverter-controlled drives for clamping beam, folding beam, B-Axis, D-Axis and back gauge
Safety	– Protection via light curtain controlled by safety-PLC for operation from the rear - Safety at the front via double-leaf sliding door
Others	– Air conditioner on both switch cabinets – Foot switch with two pedals incl. protection cover – Anchor plates incl. dowels – Standard machine without tools

Special equipment	
Back gauge	– Side table left or right, support table closed with ball rollers. Technical data, see page 11 – Pneumatically lowerable gauge fingers (2 sectors 850/1700 mm) – Various back gauge extensions right and/or left with pneumatically lowerable gauge fingers (balls in table), combinable with side table
Folding beam	– Additional option, automatic tool changer for folding beam tools with pneumatic tool clamping device WZS 7200 incl. incl. two tool magazines and one folding beam tool set
Others	– Voltage transformer 18 kVA – Tool options see p. 28-29

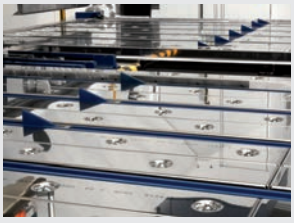
Dimensions and technical data



EVO Center	3,200 x 4.0	4,000 x 3.0
Working length (a)	3,240 mm	4,040 mm
Sheet thickness (400 N/mm²)	4.0 mm	3.0 mm
Machine length (b)	9,406 mm	10,206 mm
Back gauge (c)		
U-1700	3,362 mm	3,362 mm
U- or rather J-3400	5,145 mm	-
U- or rather J-4250	-	5,995 mm
Weight with back gauge U-1700 (ca.)	14,000 kg	16,380 kg
Clamping beam		
Geometry	180°	180°
Stroke	850 mm	850 mm
Drive power	2 x 6.69 kW	2 x 6.69 kW
Speed	120 mm/sec	120 mm/sec
Folding beam		
Adjustment, motorized	200 mm	200 mm
Drive power	2 x 7.0 kW	2 x 7.0 kW
Speed	150°/sec	150°/sec
Folding center adjustment	80 mm	

Bottom beam blade with finger grooves and folding blades

Drives, tools, gauges - quality shows in every detail



Back gauge system

We supply you with back gauge and table options that fit your requirements. Sheet support tables with balls make handling easy and gentle on the material. The pneumatically lowerable angle gauges on the left and right of the aisle are suitable for folding long, thin sheets at exactly the right angle.

Suction gauge controlled via POS 3000

Suction plates in the back gauge table enable pneumatic fixation of the workpiece. The suction gauge grips where gauge fingers cannot find a reliable hold, because the workpiece has curves or recesses on the gauge side, for example.

Flexibility through automatic tool change

The fully automatic tool changer of the EVO Center equips the clamping beam quickly and precisely with tools for a maximum clamping beam tool height of 400 mm.

Fully automatic folding beam tool change

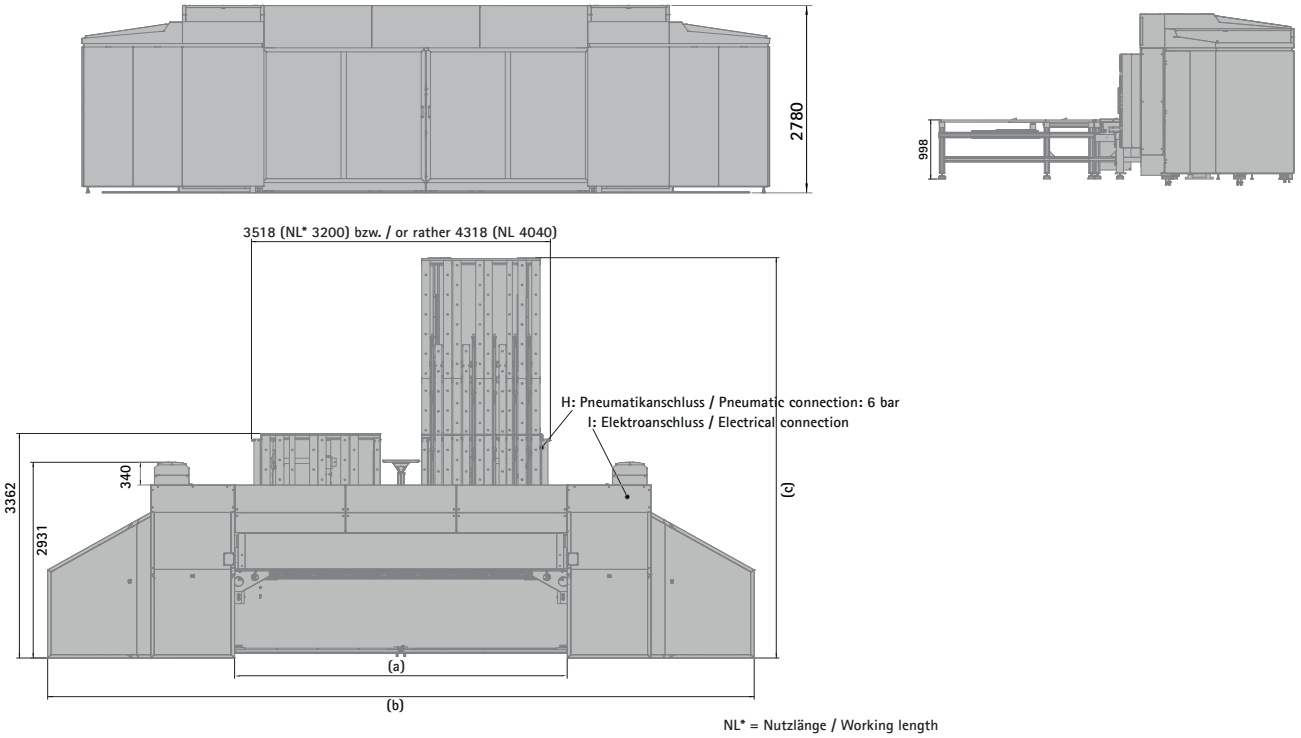
Optionally, there is an automatic tool changer for folding beam tools available. The tools are clamped pneumatically here.

Highlights

- 3D graphic control including a schematic depiction of the machine, tool, and work pieces
- Intuitive, visual touchscreen programming
- 3D bending simulator for visual program inspection
- Mount programming and control of the automatic tool changer
- Cycle time calculator
- PC-Version, CAM connection, ERP/ PPS interfaces, and DXF converter available

Option: Software „SCHRÖDER Unfold"

Dimensions: EVO Center

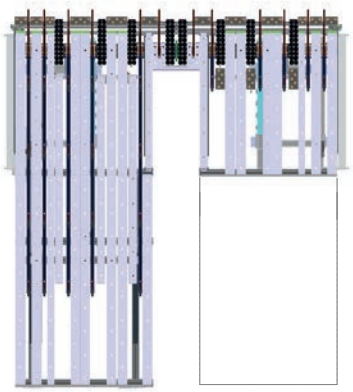


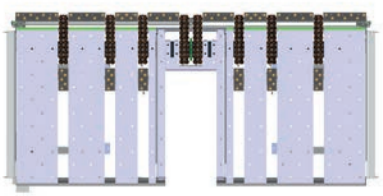
Special back gauge extensions

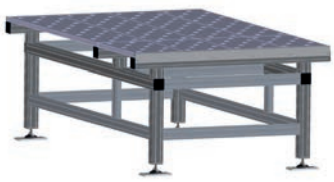
Back gauge extension right and/or left with pneumatically lowerable gauge fi ngers (balls in table), combinable with side table:

Extension left 3400, 4 x 850 mm
Extension left 4250, 5 x 850 mm
Extension right 3400, 4 x 850 mm
Extension right 4250, 5 x 850 mm

Standard:
Gauge table 1700 mm in U-shape







Dimension side table (wxd):
NL 3200: 1,336 x 1,864 mm
NL 4000: 1,716 x 2,614 mm

Folding machine SPB Evolution UD

The SPB Evolution UD is our versatile industrial folding machine for the single piece and serial production that unifies power, speed and precision.

SPB Evolution UD		
Work. length x Sheet thickn. (400 N/mm²)	3 240 x 4,0 mm	4 040 x 3,0 mm

Up-and-Down function:
counter folds without turning the sheet

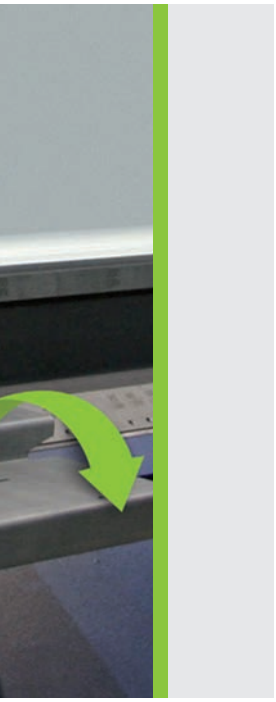
The SPB Evolution UD allows you to bend complex work pieces such as panels, boxes or cassettes and to achieve high productivity at the same time. The machine with the working length 3200x4,0 or 4000x3,0 is an extremely flexible Up-and-Down folding machine. In addition to precise linear drives and graphic programming, the rotating clamping beam or the suction gauge are the highlight functions of the machine. All these are possibilities to make your production faster, more efficient and more flexible.

Multi-shift operation, industrial series production, complex processing of stable metal sheets – the SPB Evolution UD provides the ability and robustness required for these challenges.

Up-and-Down-Technology increases productivity

Minimize the costs of handling large metal sheets on the machine and take advantage of Schröder's Up-and-Down technology. More processing steps in shorter times. With conventional folding machines, the sheet needs to be turned. Even a simple Z-fold becomes a challenge if an operator needs to turn a four-meter long sheet upside down.

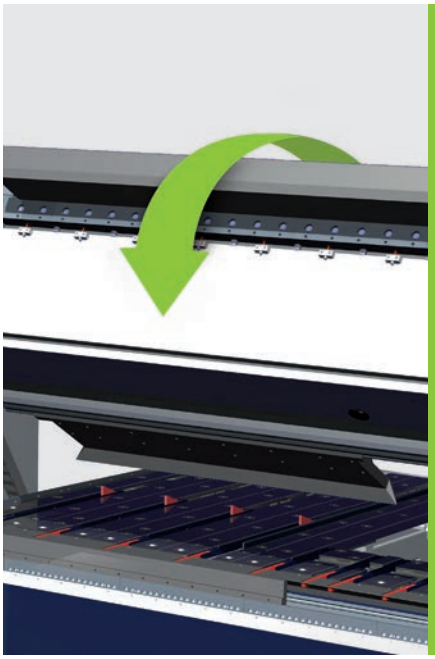
We provide the solution: The SPB Evolution UD bends up and down in one processing step. This saves numerous manual actions, simplifies the handling of unwieldy work pieces, shortens throughput times and lowers costs per unit.



Standard equipment	
Software control	– POS 3000 3-D graphic control with touchscreen on swivelling arm – Radius function – Remote maintenance
Clamping beam	– Clamping beam stroke: 650 mm – Rotating clamping beam as automatic tool changing system incl. hydraulic tool clamping device (WZS 2000)
Folding beam	– Up'n Down folding beam, automatically controlled – Pneumatic tool clamping device (WZS 7000) – Folding beam adjustment, motorized: 200 mm – Folding center adjustment, motorized: 80 mm – Motorized central crowning device – Center point adjustment, converter-controlled drive
Back gauge	– Positioning gauge 10 - 3,400 mm and 10 - 4,250 mm as U-shape with sectors, pneumatic pop-up gauge fingers, steel balls in sheet support table. Angle gauge 1500 mm left and right side. Suction plates in gauge table, program-controlled incl. 2 pneumatic pop up square arms assembled aisle side. The sheet support plates can be removed to make room for downflange applications
Safety	– Protection via light barrier controlled by safety-PLC for operation from the rear – Safety package for operation from the front, incl. 2nd foot switch on rail for lateral movement
Others	– Standard machine without tools – Foot switch – Anchor plates incl. dowels

Special equipment	
Software control	– External programming (PC-Version) – Unfold software „SCHRÖDER Unfold" (POS 3000 PC Version required)
Safety	– Additional equipment for 2-man-operation control in accordance with accident prevention rules required
Others	– Voltage transformer 18 kVA – Air conditioner on both switch cabinets – Tool options see p. 28-29

Dimensions and technical data



SPB EVOLUTION UD	3,200 x 4.0	4,000 x 3.0
Working length (a)	3,240 mm	4,040 mm
Sheet thickness (400 N/mm²)	4.0 mm	3.0 mm
Machine length (b)	6,332 mm	7,132 mm
Back gauge (c)		
U-3400	5,180 mm	-
U-4250	-	6,030 mm
Weight without back gauge	12,260 kg	13,350 kg
Clamping beam		
Geometry	180° / 45°	180° / 45°
Stroke	650 mm	650 mm
Drive power	2 x 6.69 kW	2 x 6.69 kW
Speed	120 mm/sec	120 mm/sec
Folding beam		
Adjustment	200 mm	200 mm
Drive power	2 x 7.0 kW	2 x 7.0 kW
Speed	150°/sec	150°/sec
Folding center adjustment	80 mm	80 mm

The rotating clamping beam holds a second set of tools.

Motorized crowning system

Rotating clamping beam

Fast changing jobs or complex folding tasks with different folding tools – the SPB Evolution UD holds a second set of tools in the rotating clamping beam. Where other folding machines need to be re-equipped, the SPB Evolution UD simply continues to work. An additional advantage: The rotating clamping beam provides an alternative machine geometry with other clearances.

Suction gauge controlled via POS 3000

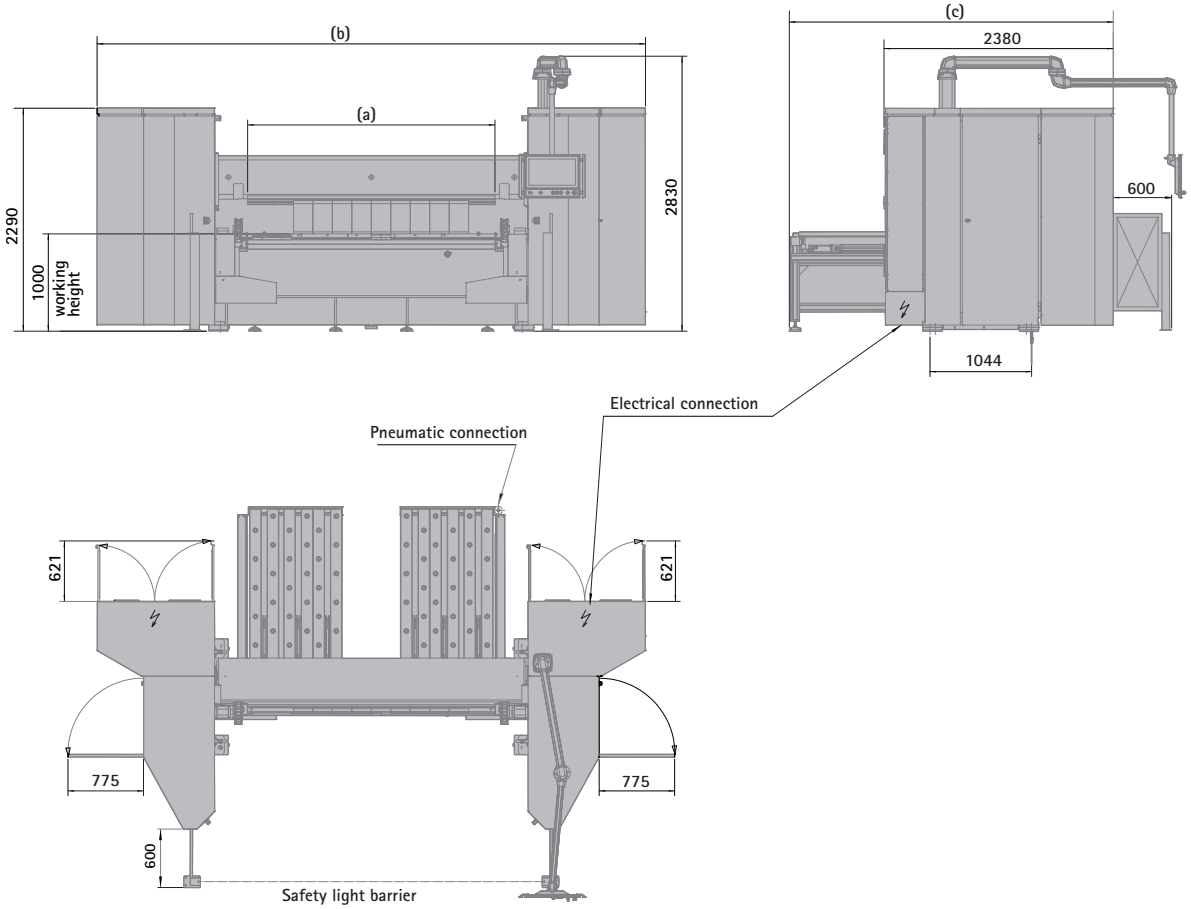
Suction cups in the back gauge pneumatically fix the sheet: The suction gauge takes effect where the pop-up gauge fingers have no reliable grip if the work piece on the gauge side e.g. has cut-outs or roundings. The sheet gets pneumatically fixed and thanks to the intelligent software control all bends on one side can be carried out with one single manual action.

Visualized quality with the POS 3000 3D graphic control

Sophisticated folding shapes can be produced easily thanks to the graphical user interface of the control software and the wide range of tools.

- 3D graphic control with schematic representation of machine, tool and workpiece
- Intuitive, visual touch-screen programming
- 3D bending simulator for visual program control
- Automatic setup programming and control of the tool changer
- Cycle time calculator
- CAM connection, ERP/PPS interfaces and DXF converter
- Options: PC-Version, Unfold software „SCHRÖDER Unfold"

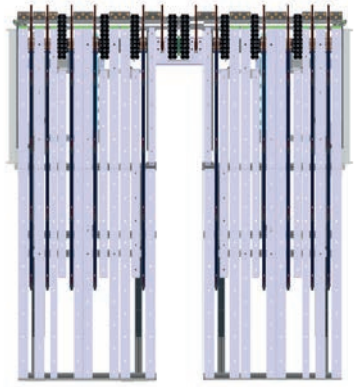
Dimensions: SPB Evolution UD



Back gauge extensions

Positioning gauge 10-3,400 mm or rather 10-42,50 mm as U-shape with sectors incl. pneumatic lowering:

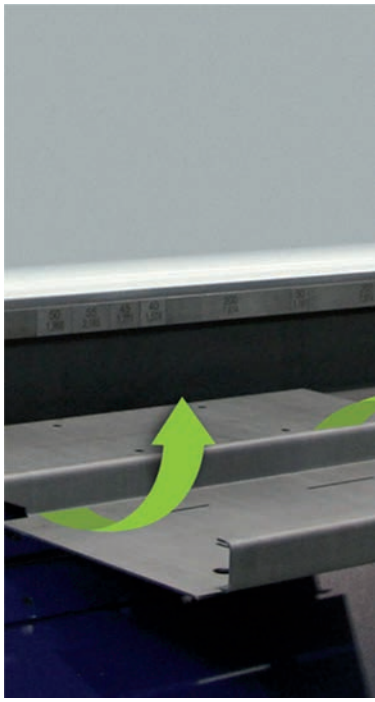
U-shape 3,400 mm
U-shape 4,250 mm



Folding machine PowerBend Industrial UD

The PowerBend Industrial UD is our professional solution for reliable and efficient operation in heavy production industrial shops. This powerful, motorized folding machine expands the portfolio of the PowerBend-series.

PowerBend Industrial UD		
Work. length x Sheet thickn. (400 N/mm²)	3,240 x 6.0 mm	4,040 x 5.0 mm



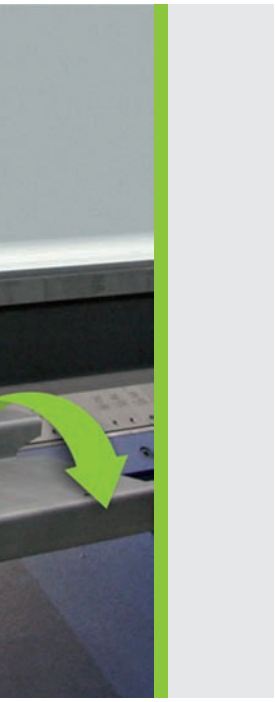
The Up-and-Down folding beam allows counterbends in one working step.

Just as the PowerBend-series, the folding machine PowerBend Industrial was engineered using finite element analysis as well as latest computer simulations. Decades of experience in industrial folding result in a rigid frame that provides a base from which the PowerBend Industrial UD achieves unmatched precision and operational efficiency.

The PowerBend Industrial UD is available with a working length of 3,200 mm for bending steel sheets up to 6.0 mm thickness. This machine can also be acquired at a working length of 4,000 mm for steel sheets up to 5.0 mm thick.

Highlights

- Unique robustness, reliability and repeat accuracy
- Production of single pieces and prototypes
- Patented Up-and-Down system
- Clamping beam stroke of 850 mm
- Tool positioning display alongside the clamping beam
- Bilateral drives on the clamping- and the folding beam achieve extremely fast clamping and folding speeds



Standard equipment	
Software control	– Graphic control POS 2000 Professional on swivelling arm – PC Version (external programming), 1st licence – Radius function – Remote maintenance
Clamping beam	– Drive: 2 x 3.0 kW (converter controlled, recirculated ball screw) – Clamping beam geometry: 180° – Clamping beam stroke: 850 mm – Axis inclination of clamping beam – Hydraulic tool clampling device (WZS 2000) – Tool positioning display alongside the clamping beam
Folding beam	– Up'n Down folding beam, program-controlled 2 servo drives for continous commuting of the axis – Drive: 2 x 5.5 kW (converter-controlled, trapezoidal spindle) – Hydraulic tool clampling device (WZS 15100) – Motorized folding beam adjusment 170 mm, servo-controlled – Motorized folding center adjustment +80/-15 mm – Motorized central crowning device
Back gauge	- Positioning gauge as U-shape: 20 - 1600 mm, 2 sectors pneumatically lowerable, sheet support table with balls, recirculated ball screw (+/- 0,1 mm)
Tools	– Standard machine without clamping beam- and folding beam tools – Bottom beam blade, one-piece, 30° with finger grooves, minimal gauge 20 mm, ca. 1100 N/mm² surface-hardened (nitrated) (WZS 16300)
Safety	– Light barrier package for operation from the front or rear side – 2nd foot switch on rail for lateral movement – RFID switch through cabinet door
Others	– Air conditioner, foot switch, LED Status display – Anchor plates incl. dowels

Special equipment	
Technology package 3D	– POS 3000 3D-Graphic control, DXF-Import and more processor capacity – Suction plates in gauge table wit 6 suction units, program-controlled incl. positioning against the folding beam – 2 fixed square arms (left + right side) – 2 pneumatic pop-up square arms assembled aisle side
Software control	– POS 3000 3D Graphic control, DXF-Import and more processor capacity – POS 3000 or POS 2000 Professional PC Version – Unfold software „SCHRÖDER Unfold" (POS 3000 PC Version required)
Back gauge	- Back gauge extension to J-gauge (1600/3200 oder 1600/4000 mm) or U-gauge (1600/3200/4000 mm) (see p. 21) - 2 fixed square arms (left + right side - 2 pneumatic pop-up square arms assembled aisle side
Safety	– Additional equipment for 2-man-operation control in accordance with accident prevention rules required
Others	– Voltage transformer 30 kVA – Overseas packaging – Tool options see p. 30-31

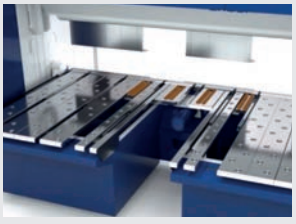
Dimensions and technical data

Clamping beam stroke of 850 mm leaves room for 400 mm high tools.

PowerBend Industrial UD	3,200 × 6.0	4,000 × 5.0
Working length (a)	3,240 mm	4,040 mm
Sheet thickness 400 N/mm²	6.0 mm	5.0 mm
Machine length (b)	5,078 mm	5,878 mm
Machine height max.	2,610 mm	
Machine width with back gauge (c)		
U-1600	3,328 mm	
U- or rather J-3200	5,058 mm	-
U- or rather J-4000	-	5,849 mm
Weight basic machine (ca.)	12,600 kg	15,200 kg
Clamping beam		
Geometry	180°	180°
Stroke	650 mm	650 mm
Drive (speed)	2 x 3.0 kW (65 mm/sec)	2 x 3.0 kW (65 mm/sec)
Folding beam		
Drive power (speed)	2 x 5.5 kW (90°/sec)	2 x 5.5 kW (90°/sec)
Folding beam adjustment, motor.	170 mm	170 mm
Folding center adjustment, motor.	+80/-15 mm	+80/-15 mm

Great variety of tools

Thanks to various tools the PowerBend Industrial is able to handle most complex folding tasks. For every product we can offer you a wide range of segmented tools, that can be changed fast and easily thanks to a hydraulic tool clamping device. The clamping beam stroke of 850 mm enables the use of 400 mm high tools and offers a lot of space when processing bulky work pieces.



Suction gauge controlled via POS 3000

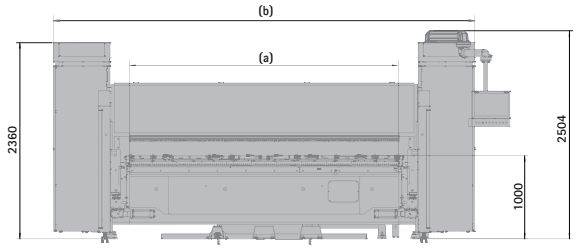
The suction gauge is an optional extension of the back gauge and enables a pneumatic fixing of sheets. Sheets can be gauged precisely against the folding beam and get fixed by suction cups. The software control recognizes the position of the sheet and starts the processing step. Afterwards the suction gauge positions the sheet automatically for every bend on that sheet - thanks to the Up-and-Down-folding beam with folds and counterfolds and without any intervention by the operator.

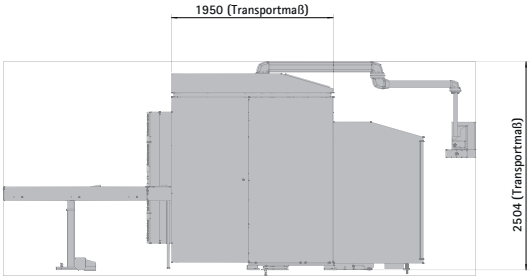
Highlight: Tool positioning display

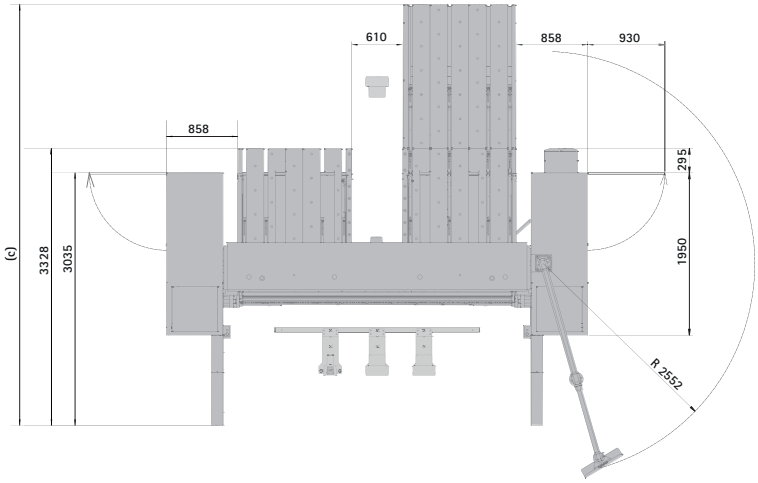
The correct positioning of clamping beam tools is visualized by an integrated LED bar over the total length of the clamping beam. The folding program visualizes the position of the tools by a tool positioning display - extremely practical e.g. if you want to set up two different tool stations on the clamping beam.

- 3D graphic control with schematic representation of machine, tool and workpiece
- Intuitive, visual touch-screen programming
- 3D bending simulator for visual program control
- Cycle time calculator
- PC-Version, CAM connection, ERP/PPS interfaces and DXF converter
- Options: Unfold software „SCHRÖDER Unfold"

Dimensions: PowerBend Industrial UD



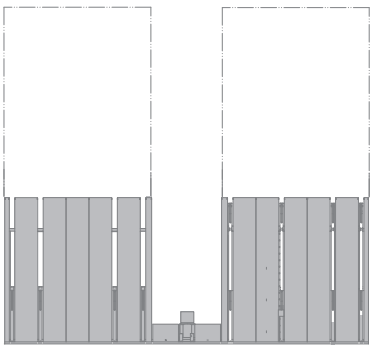


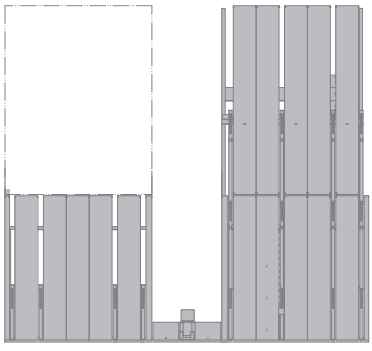


Options for back gauge extensions

Back gauge extensions: Basis: U-shape 20 - 1,600 mm

J-shape 1600/3200 mm
J-shape 1600/4000 mm
U-shape 3400 mm
U-shape 4000 mm





Folding machine EVO Heavy Duty

The EVO Heavy Duty is our hydraulic power machine for heavy sheet metal. The heavy duty folding machine is available in a working length of 3240 mm and effortlessly bends up to 16.0 mm steel. This machine is built for demanding, hard work.

EVO Heavy Duty	
Work. length x Sheet thickn. (400 N/mm²)	3,240 x 16.0 mm

Option: Tool cabinet WZS 2500 on the left side of the machine for storage of goat's foot segments

The EVO Heavy Duty – strong and powerful

- Bending work with one tool set from thin sheet up to thick sheet
- Economical and reliable folding machine with high operator friendliness
- Optimum flow of forces during bending
- Minimal set-up times
- Innovative and new hydraulic compact drives enable high compression force of 220 t
- High-precision stops thanks to graphic control POS2000 Professional (optionally POS3000)
- Great flexibility and variability due to extensive equipment such as motorized adjustment of lower and bending beams, control systems, stop systems, tool options.

Highlights

- Unique robustness, reliability and repeatability
- Highest precision combined with greatest possible bending performance
- High productivity due to easy handling of the workpieces
- Offline-programming and innovative CAD/CAM concept thanks to Schröder Unfold
- Rear lighting alongside the clamping beam
- Optionally storage space for tools in side panels
- Clamping and folding beam drives on both sides for extremely fast closing of the clamping beam and swiveling of the folding beam

Standard equipment	
Software control	– Graphic control POS 2000 Professional – Monitor in front of the machine, integrated into the casing - rotatable – Radius function – PC Version (external programming), 1. licence – Remote maintenance
Clamping beam	– Clamping beam stroke: 500 mm – Clamping beam geometry: 45° – Hydraulic tool clamping device (WZS 2500)
Folding beam	– Folding beam adjustment, motorized: 60 mm – Mechanic tool clamping device (WZS 18000) – Bending angle, max. 180° – Motorized crowning device – Folding blade 2-piece, b= 18 mm, h= 110 mm – Reinforced folding blade 2-piece, b= 112 mm, h= 110 mm
Bottom beam	– Bottom beam adjustment, motorized: 60 mm – Mechanic tool clamping device (WZS 17000) – Bottom beam blade with finger grooves, min. gauge dimension 30 mm or rather bottom beam blade without finger grooves, min. gauge dimension 120 mm
Back gauge	– Motorized back gauge MAH 25R, working range 30 - 1600 mm, motorized adjustment via ball screws, sheet support table with balls
Safety	– Foot switch on rail for lateral movement – Safety enclosure on the left and right of the machine with two shelves each
Others	– Motor drive 37 kW – Anchor plates incl. dowels

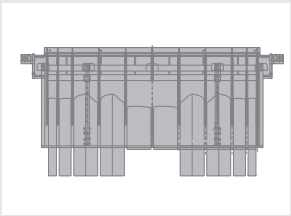
Special equipment	
Software control	– POS 3000 3D Graphic control, DXF-Import and more processor capacity – Unfold software „SCHRÖDER Unfold“
Back gauge	– Thanks to its modular system, the motorized back gauge MAH 25R 30-1600 mm can be extended to J- or U-gauge: J-shape 30 - 1600/3200 mm or U-shape 30 - 3200 mm – Angle gauge right or left side, adjustable – Gripper gauge system MAH21, gauge table 120 - 2000 mm, reinforced sheet supports with balls movement range 1880 mm, 4 pneumatic grippers fixed screwed (minimum height clamping beam tool 80 mm)
Safety	– Additional equipment for 2-man-operation control in accordance with accident prevention rules required – Safety package Plus: Light barrier package in front, RFID switch to secure the side doors
Others	– Tool cabinet WZS 2500 Cabinet on the left for storage of goat's foot segments Cabinet on the right for storage of sharp nose blade SA 45 segment length 500 and 540 mm as well as 2 shelves – Package „operation from the rear“: 2nd monitor on the rear incl. height adjustable support arm system HMA-Lift and rear lighting 3x PROFILIGHT LED, 2nd foot switch on the rear, access security in front via light barriers – Covering of hydraulic unit, Voltage transformer 52 kVA – Tool options see p. 30-31

Dimensions and technical data

Rear view of the machine EVO Heavy Duty

EVO Heavy Duty	3,200 x 16.0
Working length	3,240 mm
Sheet thickness (400 N/mm²)	16.0 mm
Main drive	37 kW
Machine length	5,870 mm
Machine height max.	3,204.5 mm
Machine width with back gauge	3,016 mm
Machine width incl. hydraulic covering	4,460.5 mm
Clamping beam	
Geometry	45°
Stroke	500 mm
Speed	80 mm/sec
Folding beam	
Adjustment, motorized	60 mm
Bending angle max.	180°
Bottom beam	
Adjustment, motorized	60 mm

Option: Tool cabinet WZS 2500: on the right for storage of sharp nose blade „SA" 45,segment length 500 & 540 mm



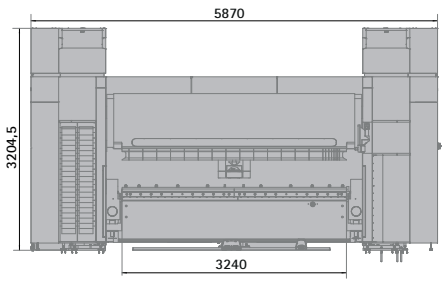
Back gauge
In its standard version the EVO Heavy Duty is equipped with a motorized back gauge and a movement range of 30 - 1,600 mm. It can be adjusted via ball screws. The table surface is equipped with steel ball rollers for easy movement of the work piece. Due to the modular design, the motorized back gauge MAH 25 R can be subsequently extended to a J- or U-shaped version at any time.

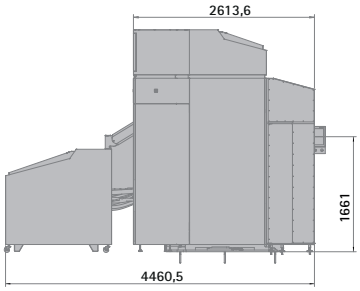
As optional equipment, the Schröder Group ofers the so-called MAH21 motorized back gauge. With pneumatically controlled grippers it leaves nothing to be desired by the operator. The grippers can grip the sheet precisely and reliably. They are driven by recirculated ball screws.

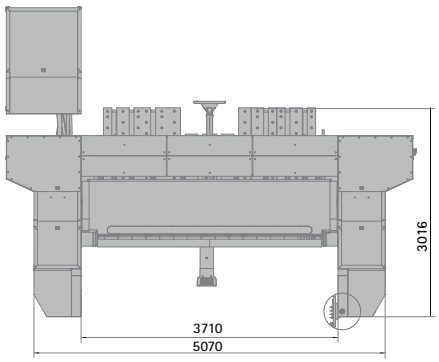
Visualized quality with the POS 3000 3D graphic control
Sophisticated folding shapes can be produced easily thanks to the graphical user interface of the control software and the wide range of tools.

- 3D graphic control with schematic representation of machine, tool and workpiece
- Intuitive, visual touch-screen programming
- 3D bending simulator for visual program control
- Cycle time calculator
- CAM connection, ERP/PPS interfaces and DXF converter
- Options: PC-Version, Unfold software „SCHRÖDER Unfold"

Dimensions: EVO Heavy Duty





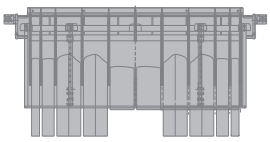


Options for back gauge extensions

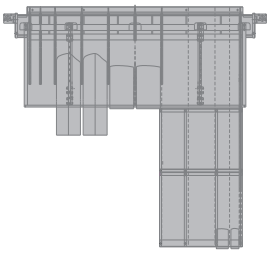
Back gauge extension right and/or left:

J-shape 3 200/1 600
U-shape 3 200

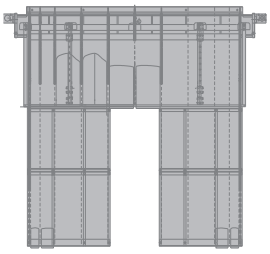
Gripper gauge system MAH21:
Gauge table 120 - 2000 mm
reinforced sheet supports with balls
movement range 1880 mm
4 pneumatic grippers fixed screwed



Motorized back gauge MAH 25R



J-shape 3200/1600



U-shape 3200

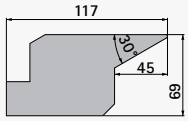
Tool options

Bottom beam tools

MAK 4 Evolution UD and EVO Center

Bottom beam tools WZS 10400
ca. 1100 N/mm² surface-hardened (nitrated)

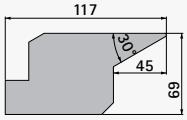
- Bottom beam blade one-piece, directly screwed
  - without finger grooves
    (minimum gauge 130 mm)
  - with finger grooves



SPB Evolution UD

Bottom beam tools WZS 10000/10300
ca. 1100 N/mm² surface-hardened (nitrated)

- Bottom beam blade one-piece, directly screwed
  - without finger grooves
    (minimum gauge 130 mm)
  - with finger grooves

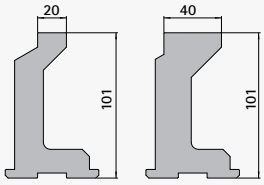


Folding beam tools

MAK 4 Evolution UD and EVO Center

Folding beam tools WZS 7000
ca. 1100 N/mm² surface-hardened (nitrated)

- Folding blades segmented (101/81 x 65 mm)
  No. 1 - L = 2 x (25/30/35/40/45/50) = 450 mm
  No. 2 - L = 200 mm (number according to work. length)
  Standard folding blade width:
  10/15/20/25/30/35/40 or 50 mm



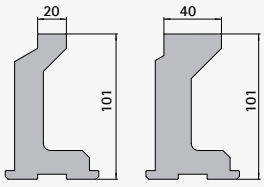
Folding beam tools WZS 7200

- Additional option automatic tool changer for folding beam tools with pneumatic tool clamping device incl. one folding beam tool set

SPB Evolution UD

Folding beam tools WZS 7000
ca. 1100 N/mm² surface-hardened (nitrated)

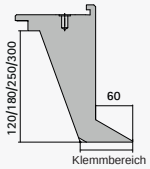
- Folding blades segmented (101/81 x 65 mm)
  No. 1 - L = 2 x (25/30/35/40/45/50) = 450 mm
  No. 2 - L = 200 mm (number according to working length)
  Standard folding blade width:
  10/15/20/25/30/35/40 or 50 mm



Clamping beam tools

Clamping beam tools WZS 5000 (only for MAK 4 Evolution UD)
ca. 1100 N/mm² surface-hardened (nitrated)

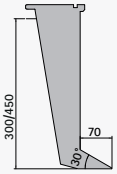
- Goat's foot blade „C", 30°
  (from radius 1.0 mm),
  clearance 60 mm
  clamping range 75 mm



No. 1 - L = 2 x (25/30/35/40/45/50) = 450 mm
No. 2 - L = 200 mm (number according to work. length)
from H = 300 mm, L = 100 mm
Height 120/180/250 or 300 mm

Clamping beam tools WZS 6000 for tool changer
ca. 1100 N/mm² surface-hardened (nitrated)

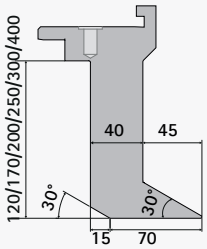
- Goat's foot blade „C", 30°
  (from radius 1.0 mm),
  clearance 70 mm
  clamping range 104 mm



No. 1 - L = 2 x (30/35/40/45/50/55/60) = 630 mm
No. 2 - L = 80 mm (number according to work. length)
Height 330 or 400 mm

Clamping beam tools WZS 2000
hydraulische Klemmung, ca. 1100 N/mm²,
surface-treated (phosphated)

- Goat's foot blade „C", 20°/30°,
  R 1/1.5/3 mm
  clearance 45 mm,
  foot width 85 mm



No. 1 - L = 1 x (25/25/30/35/40/45/50) = 250 mm
No. 2 - L = 200 mm (number according to work. length)
ab H = 300 mm, L = 100 mm
No. 3 - L = 2 x 100 = 200 mm (corner parts)
Height 120/170/200/250 or 300 mm

- Set of segments for goat's foot blade „C"
  clearance 45 mm, foot width 85 mm
  No. 1 - L = 1 x (30/35/40/45/50) = 200 mm

Additional tools

- 1 pair fixed corner parts L = 2x 110 mm = 220 mm
  (suitable for goat's foot set)
- Additional pair of hinged corner parts
- Drive for active driven corner parts (free space of total clamping beam tooling is reduced by 31 mm)
- Additional pair of hinged corner parts - active driven
  (free space of total clamping beam tooling is reduced by 31 mm)

- Additional pair of hinged corner parts 2x 110 mm

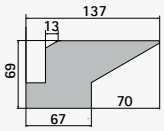
Tool options

Bottom beam tools

EVO DuoBend

Bottom beam tools WZS 10500
ca. 1100 N/mm² surface-hardened (nitrated)

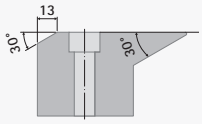
- Bottom beam blade one-piece
  directly scerwed, 30°, clearance 70 mm
  - without finger grooves
    (Min. gauge 130 mm)
  - with finger grooves



PowerBend Industrial UD

Bottom beam tools WZS 16300
ca. 1100 N/mm² surface-hardened (nitrated)

- Bottom beam blade one-piece
  30° with finger grooves,
  minimum gauge 20 mm
  (included in standard)



EVO Heavy Duty

Bottom beam tools WZS 17000
ca. 1100 N/mm² hardened (nitrated)

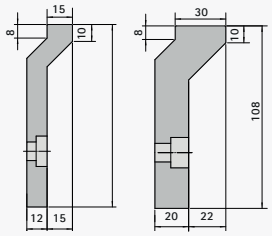
- Bottom beam blade one-piece
  without finger grooves
  (minimum gauge 120 mm) or
  with finger grooves
  (minimum gauge 30 mm)

Folding beam tools

EVO DuoBend

Folding beam tools WZS 19000
ca. 1100 N/mm² surface-hardened (nitrated)

- 1 pair folding blades cranked
  one-piece, directly screwed, H = 108 mm
  Biegeschienenbreiten: 15/20/30/35 mm



Folding beam tools WZS 19100
ca. 1100 N/mm² surface-hardened (nitrated)

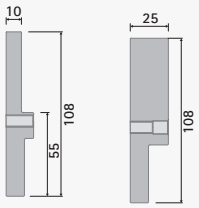
- 1 pair folding blades cranked
  for clamping system WZS 19100

  Folding blades segmented, H = 108 mm:
  No. 1 - L = 2 x (25/30/35/40/45/50) = 450 mm
  No. 2 - L = 200 mm (number according to work. length)
  Folding blade width: 10/20/30/35 mm

PowerBend Industrial UD

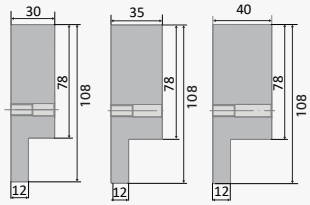
Folding beam tools WZS 15100
hydraulic clamping, ca. 1 100 N/mm²
surface-treated (phosphated)

- Folding blades segmented
  10/15/20/25 mm, 108 mm high



Folding beam tools WZS 15200
hydraulic clamping, ca. 1 100 N/mm²
surface-treated (phosphated)

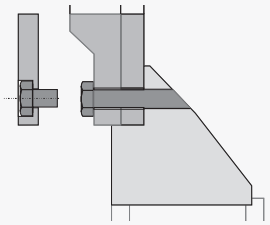
- Folding blades segmented
  30/35/40/50 mm, 108 mm high



EVO Heavy Duty

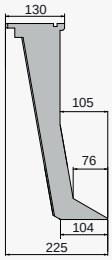
Folding beam tools WZS 18000
ca. 1100 N/mm², inductive hardened, phosphated

- Folding blades 2-piece
  width = 18 mm, height = 110 mm
  and
  reinforced folding blades 2-piece
  width = 112 mm, height = 110 mm



Clamping beam tools

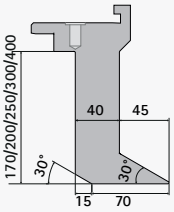
Clamping beam tools WZS 6500
ca. 1100 N/mm²
laser hardened (mangan-phosphated)



- Goat's foot segment „C", 30°, (from radius 1.0 mm)
  Tool depth 225 mm,
  minimal tool height H = 250 mm
  clearance 76 mm,
  clamping range 104 mm

  No. 1 - L = 1 x (30/35/40/45/50/55/60) = 630 mm
  No. 2 - L = 80 mm (number according to work. length)
  Height 330 mm or 400 mm

Clamping beam tools WZS 2000
hydraulic clamping, ca. 1100 N/mm²
surface-treated (phosphated)

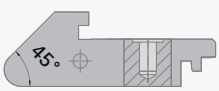


- Goat's foot blade „C", 20°/30°,
  Min. tool heigth H = 170 mm
  R 1/1.5/3 mm
  clearance 45 mm,
  foot width 85 mm

  No. 1 - L = 1 x (25/25/30/35/40/45/50) = 250 mm
  No. 2 - L = 200 mm (number according to work. length)
  from H = 300 mm, L = 100 mm
  No. 3 - L = 2 x 100 = 200 mm (corner parts)
  Height 170/200/250/300 or 400 mm

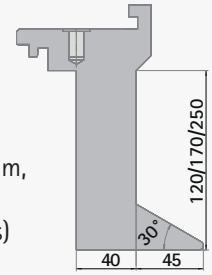
Clamping beam tools WZS 2500
hydraulic clamping, ca. 1100 N/mm²
surface-treated (phosphated), hardened (inductive)

- Sharp nose blade „SA" 45°
  geteilt, R8 - R12
  No. 1 - L = 1 x 200 mm,
  No. 2 - L = 4 x 500 mm
  No. 3 - L = 2 x 520 mm



- Goat's foot blade „C" 30°, R 3,0
  clearance 45 mm, foot width 85 mm

  No. 1 - L = 25/25/30/35/40/45/50 = 250 mm,
  No. 2 - L = 14 x 200 mm
  No. 3 - L = 2 x 100 = 200 mm (corner parts)



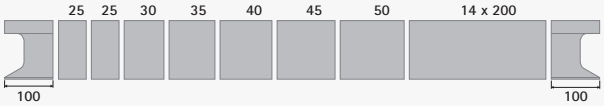
Additional tools

- 1 pair fixed corner parts L = 2x 110 mm = 220 mm
  (suitable for goat's foot set)
- Additional pair of hinged corner parts
- Drive for active driven corner parts (free space of total clamping beam tooling is reduced by 31 mm)
- Additional pair of hinged corner parts - active driven
  (free space of total clamping beam tooling is reduced by 31 mm)

- additional pair of hinged corner parts 2 x 110 mm

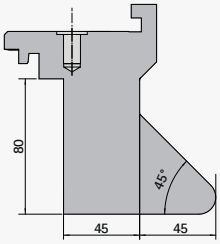
Example segmentation of folding blades at a working length of 3,240 mm – other working lengths are each filled with 200 segments

Example segmentation of goat's foot blades at a working length of 3,240 mm – other working lengths are filled with segments of 100 and 200 respectively



- Goat's foot blade segmented without corner part
  45°, R8 - R12 (please specify with order)
  clearance 45 mm, foot width 90 mm, h = 80 mm

  No. 1 - L = 1x 200 mm
  No. 2 - L = 4x 500 mm
  No. 3 - L = 2x 520 mm
  Total length 3240 mm



Schröder Group

The Schröder Group consists of Hans Schröder Maschinenbau GmbH, which is located in Wessobrunn, Germany, SCHRÖDER-FASTI Technologie GmbH, located in Wermelskirchen, Germany and the SMU GmbH, located in Leinburg-Weißenbrunn.

Founded in 1949, Hans Schröder Maschinenbau GmbH unifies traditional and modern approaches in machine building: Successfully managed as a quality and customer-oriented, family-owned company, Hans Schröder Maschinenbau is specialized in the development of modern machine concepts for bending and cutting sheet metal.

The successful integration of the Fasti Company in 2006 and its worldwide presence make the Schröder Group one of today's leading providers of machines for bending, cutting, beading, flanging, and circular bending all types of sheet metal. The company's precision machines range from proven solutions for craftsmen to innovative, high-performance machines for automatic industrial production processes. 2021 the Schröder Group was expanded by the tool manufacturer SMU GmbH. Overall, the Schröder Group currently employs more than 300 people at various locations at home and abroad.

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