PIPE BENDING SYSTEMS

TRACTO-TECHNIK GmbH & Co. KG
PIPE BENDING SYSTEMS

Hunold-Rump-Str. 76-80 · 57368 Lennestadt · Germany
Phone: +49.2725.9540-0 · Fax: +49.2725.9540-33
pbs@tracto-technik.de · http://pipe-bending-systems.com

TRACTO-TECHNIK GmbH & Co. KG | PIPE BENDING SYSTEMS

TRACTO-TECHNIK GmbH & Co. KG (TT)

- TT was founded in 1962
- TT engages about 500 employees worldwide
- TT is internationally oriented and exports its products to more than 70 countries
- TT obtained several awards for innovations and outstanding service
- TT actually occupies more than 350 valid patents
- TT business units: NODIG and PBS

PIPE BENDING SYSTEMS (PBS)

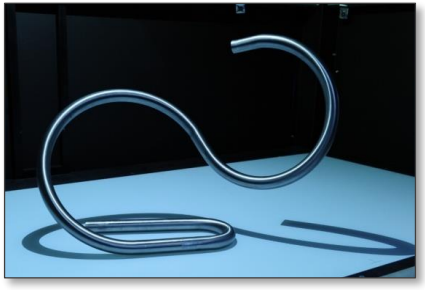
- PBS has been a competent partner in pipe fabrication for more than five decades
- PBS is an expert in customized piping and pipe pre-fabrication, particularly with regard to single parts and small series production
- PBS develops and produces innovative, high-performance machine technology, precise measuring systems and intelligent software solutions
- PBS combines machinery, measuring technology and software to system solutions with high customer benefit
- PBS stands for simplicity and efficiency… simply smart.

PIPE BENDING SYSTEMS | Our strategy

- Integration of machinery, measuring technology and software solutions in different combinations and levels of deployment to PIPE BENDING SYSTEMS

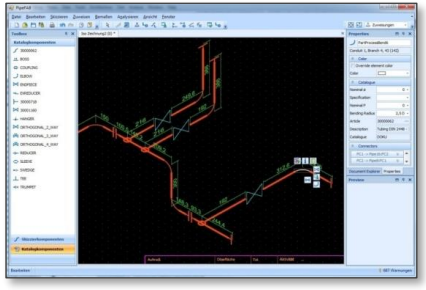
Innovative machinery

- Pipe bending machines
- Pipe end processing
- Connection technology



Precise measuring technology

- Optical measuring systems
- Coordinate measuring arms
- Pipe measuring software



Efficient software solutions

- Pipe bending software
- Workflow management software

PIPE BENDING SYSTEMS | Our products

Working center for hydraulic piping

TUBOMAT

Semi-automatic pipe bending machines

TUBOBEND

CNC pipe bending machines

TUBOTRON

All-electric CNC pipe bending machines

TUBOTRON VARIO

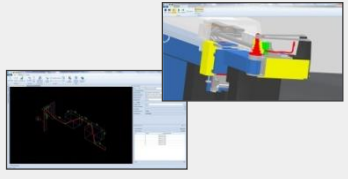
Pipe end processing & connection technology

TUBOFORM / TUBOGRAT

Pipe measuring systems

TUBOSCAN

Software solutions



PIPEFAB

Automated fabrication of template pipes

SCOPELINK / ROBOFIX

TUBOMAT | The professional solution for customized piping

The TUBOMAT :

- ... combines trendsetting technology and a modern industrial design with proven functionalities and reliability.
- ... is characterized by latest control technology and ease of operation.
- ... features numerous optimizations regarding functionality, ergonomics and energy efficiency.
- ... is the perfect entry into the best system for customized piping.

TUBOMAT | The professional solution for customized piping

Technical data

max. pipe diameter	.....	48,3 mm
max. bending radius *	.....	125 mm
Control	.....	SIMATIC TP
bending speed	.....	20 °/s
bending accuracy	.....	± 0.2 °

* *depends on pipe diameter*

TUBOMAT 3rd generation - improvements and optimisations

►► MODERN SYSTEM CONTROL FOR PROGRAM MODE OR 4-FOLD BENDING ANGLE PRESELECTION

►► POSSIBILITY OF IMPORTING PIPEFAB BENDING DATA

►► OPTIMISED TOOL CONCEPT FOR BENDING

►► COMPLETELY MODULAR STRUCTURE

►► EXPOSED AND COMPACT BENDING HEAD

►► ERGONOMICALLY OPTIMISED WORKFLOWS

►► APPROVED BENDING OPERATION BY HAND LEVER VALVE

►► MODERN DESIGN

►► OPTIMISED POSITION OF THE PIPE DEBURRERS

►► ELEKTRONICALLY CONTROLLED CUTTING-RING ASSEMBLY

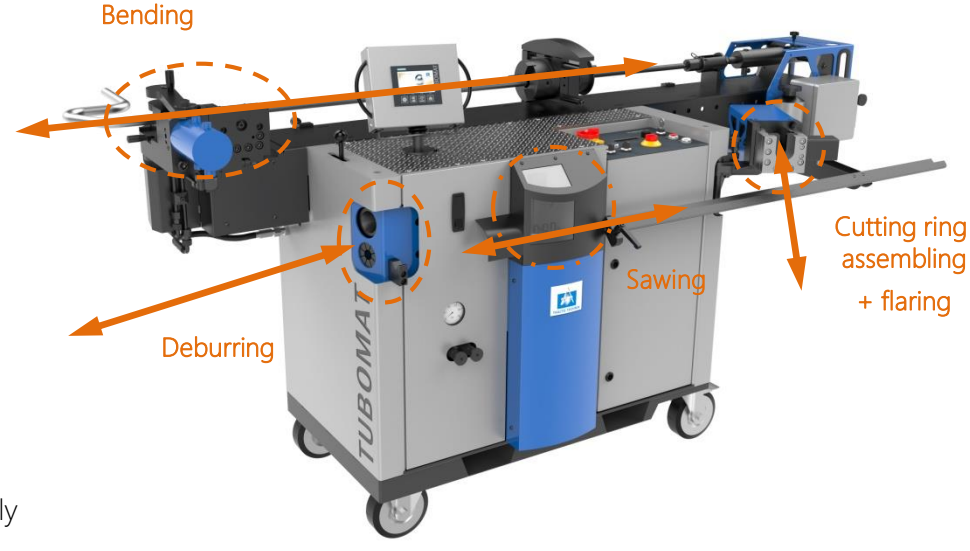
►► FOLDING SAW BLADE PROTECTION COVER

►► SWIVELLING CUTTING-RING ASSEMBLY / FLARING UNIT

►► ADJUSTABLE SAW FEED

►► SAW CUT VISUALISATION BY MEANS OF A LINE LASER

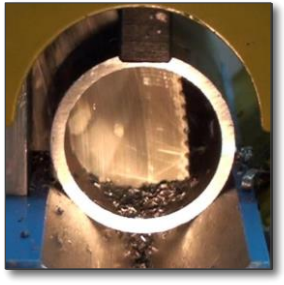
TUBOMAT | The professional solution for customized piping



The TUBOMAT can be flexibly configured from a pure bending machine to a complete tube processing centre with the functions sawing, deburring, cutting ring assembly and flaring.

TUBOMAT | The professional solution for customized piping

Up to 5 working functions for hydraulic piping in just one compact machine



Sawing

Deburring

Bending

Cutting ring assembly

Flaring

TUBOBEND | Semi-automatic pipe bending machines

Perfectly suited for manual pre-fabrication in small and medium sized batches

TUBOBEND 16

TUBOBEND 25

TUBOBEND 42

TUBOBEND 60

TUBOBEND 80

TUBOBEND 25

Bending direction either right or left

Technical data

max. pipe diameter	.....	25,0 mm
max. bending radius *	.....	75,0 mm
Control	.....	SIMATIC TP
bending speed	.....	58 °/s
bending accuracy	.....	± 0,2 °

* *depends on pipe diameter*

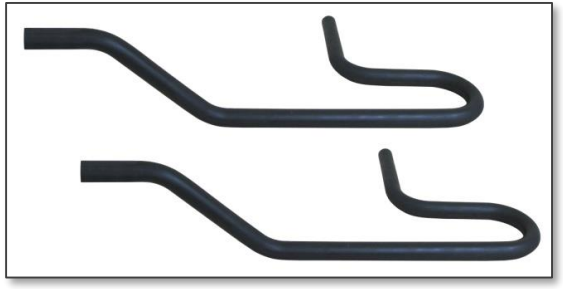
TUBOBEND 25

Basic equipment / features

- Compact and exposed bending head for maximum bending space
- Electronic control for bending axes with 7“ Toch Panel, set point / actual value display, automatic sequencing of data records and storage capability for 100 bending programs
- Ergonomically optimized control panel
- Positioning device for pipe length and rotation, incl. 3-jaw chuck, stoppers and comfortable transversal adjustment
- Hydraulic pipe clamping with adjustable clamping pressure
- Hydraulic pressure die positioning
- Hydraulic mandrel retraction unit with comfortable transversal adjustment
- Maintenance-friendly housing concept with optimized accessability
- Modern industrial design
- Machine mobile and flexible to use
- Optional right or left hand bending direction

Variable additional equipment / accessories

- Mechanical quick collet chuck or hydraulic collet chuck
- Adjustable bending speed
- Length and rotation measuring system with digital display
- Comfortable sequencing of the dat a records for stopper adjustment
- Breaking system for length and rotation positioning of pipe
- Mandrel lubrication device
- Interface for data import from PIPEFAB pipe bending software



Application example: hydraulic pipe
carbon steel Ø 22,0 x 2,0 mm

TUBOBEND 42

Bending direction either right or left

Technical data

max. pipe diameter	.....	42,0 mm
max. bending radius *	.....	125 mm
Control	.....	SIMATIC TP
bending speed	.....	44 °/s
bending accuracy	.....	± 0.1 °

* *depends on pipe diameter*

TUBOBEND 42

Basic equipment / features

- Compact and exposed bending head for maximum bending space
- Electronic control for bending axes with 7“ Toch Panel, set point / actual value display, automatic sequencing of data records and storage capability for 100 bending programs
- Ergonomically optimized control panel
- Positioning device for pipe length and rotation, incl. 3-jaw chuck, stoppers and comfortable transversal adjustment
- Hydraulic pipe clamping with adjustable clamping pressure
- Hydraulic pressure die positioning
- Hydraulic mandrel retraction unit with comfortable transversal adjustment
- Maintenance-friendly housing concept with optimized accessability
- Modern industrial design
- Machine mobile and flexible to use
- Optional right or left hand bending direction

Additional equipment / accessories

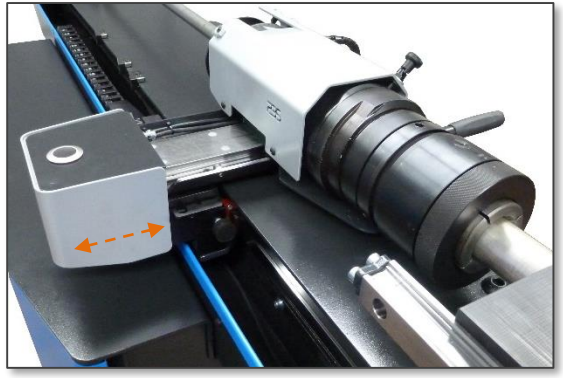
- Mechanical quick collet chuck or hydraulic collet chuck
- Adjustable bending speed
- Length and rotation measuring system with digital display
- Comfortable sequencing of the dat a records for stopper adjustment
- Breaking system for length and rotation positioning of pipe
- Mandrel lubrication device
- Interface for data import from PIPEFAB pipe bending software

Application example: hydraulic pipe
carbon steel Ø 42,0 x 3,0 mm

TUBOBEND 42

Ergonomically optimized control panel, individually adjustable

Clear arrangement of function keys



Mechanical quick collet chuck (Option)

TUBOBEND 80 | Semi-automatic pipe bending machine

Technical data			
Max. pipe diameter	76.1 mm	Max. bending speed	16 °/s
Max. bending radius	190 mm	Bending accuracy	± 0.2 °

TUBOBEND 80 | Semi-automatic pipe bending machine

Basic equipment / features

- Exposed bending head for maximum bending space
- Electronic SIMATIC Touch Panel control with user guidance, automatic sequencing of the data records and storage capability for 100 bending programs
- Hydraulic pipe clamping with adjustable clamping pressure
- Hydraulic pressure die positioning
- Follower-type pressure die (sliding guide)
- Hydraulic mandrel retraction

Options / accessories

- Positioning device for pipe length and rotation, incl. 3-jaw chuck
- Mechanical collet chuck or hydraulic collet chuck
- Adjustable bending speed
- Follower-type pressure die (linear guiding)
- Pressure die assist
- Automatic pressure die retraction
- Length and rotation measuring system with digital display
- Anticipated mandrel retraction for optimizing the bend quality
- Mandrel lubrication device
- Remote control or foot switch for bending and clamping function

Application example: square pipe,
mild steel ☐ 40.0 x 40.0 x 3.0 mm

TUBOTRON | CNC pipe bending machines

Perfectly suited for automated pre-fabrication of pipes

TUBOTRON 20 / 25 / 30

TUBOTRON 140 / 170

TUBOTRON 50 / 60 / 90

TUBOTRON VARIO

TUBOTRON 20 | CNC pipe bending machine

Technical data			
Max. pipe diameter	20 mm	Max. pipe feed	2000 mm/s
Max. bending radius	100 mm	Max. pipe rotation	880 °/s
Max. bending speed	450 °/s	Positioning accuracy	± 0.05 ° [mm]

TUBOTRON 20 | CNC pipe bending machine

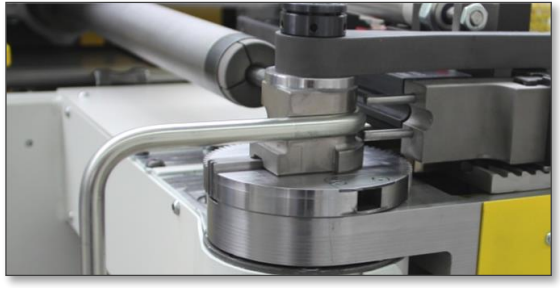
Features / Equipment

- Programmable sequence control with user guidance via SIMATIC Touch PC
- Servo-electric bending drive
- Hydraulic pipe clamping (pressure control)
- Hydraulic pressure die positioning
- Hydraulic long-neck collet chuck allows for pipe positioning in the pressure die area (with re-gripping function)
- Hydraulic and anticipated mandrel retraction
- Automatic minimum quantity mandrel lubrication
- Pipe and mandrel support
- Interface for remote maintenance
- Oil cooler

TUBOTRON 25 | CNC pipe bending machine

Features / Equipment

- Programmable sequence control with user guidance via SIMATIC Touch PC
- Servo-electric bending drive
- Pneumatic pipe clamping (mechanical fine adjustment)
- Pneumatic pressure die positioning (mechanical fine adjustment)
- Pneumatic long-neck collet chuck allows for pipe positioning in the pressure die area (with re-gripping function)
- Servo-electric and anticipated mandrel retraction
- Automatic minimum quantity mandrel lubrication
- Pipe and mandrel support
- Interface for remote maintenance



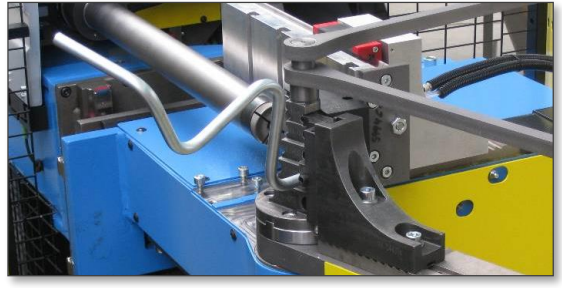
TUBOTRON 25 | CNC pipe bending machine

Technical data			
Max. pipe diameter	25 mm	Max. pipe feed	1600 mm/s
Max. bending radius	140 mm	Max. pipe rotation	360 °/s
Max. bending speed	170 °/s	Positioning accuracy	± 0.05 ° [mm]

TUBOTRON 25 MR | CNC pipe bending machine

Features / Equipment

- Programmable sequence control with user guidance via SIMATIC Touch PC
- Bending head with servo-electric horizontal and vertical axes allows for multi-radii bending (stack tooling)
- Servo-electric bending drive
- Pneumatic pipe clamping (mechanical fine adjustment)
- Pneumatic pressure die positioning (mechanical fine adjustment)
- Pneumatic long-neck collet chuck allows for pipe positioning in the pressure die area (with re-gripping function)
- Servo-electric and anticipated mandrel retraction
- Automatic minimum quantity mandrel lubrication
- Pipe and mandrel support
- Interface for remote maintenance



TUBOTRON 25 MR | CNC pipe bending machine

Technical data					
Max. pipe diameter	.....	25 mm	Max. pipe feed	.....	1600 mm/s
Max. bending radius	.....	140 mm	Max. pipe rotation	.....	360 °/s
Max. bending speed	.....	170 °/s	Positioning accuracy	.....	± 0.05 ° [mm]

TUBOTRON 30 | CNC pipe bending machine

Technical data

Max. pipe diameter	.....	30,0 mm
Max. bending radius *	.....	200 mm
Control	.....	SIMATIC S7
Max. bending speed	.....	140 °/s
Max. pipe feed	.....	1600 mm/s
Max. pipe rotation	.....	360 °/s
Positioning accuracy	.....	± 0.05 ° [mm]
Length available	.....	3000 / 4500 / 6000 mm

* *depends on pipe diameter*

TUBOTRON 30 | CNC pipe bending machine

Basic equipment / features

- Programmable sequence control with user guidance via SIMATIC Box PC with touch panel
- Possible connection to PC-network
- Hydraulic bending drive
- Hydraulic pipe clamping, programmable clamping power
- Hydraulic pressure die positioning
- Hydraulic long-neck collet chuck allows for pipe positioning in the pressure die area (with re-gripping function)
- Hydraulic and anticipated mandrel retraction
- Automatic mandrel lubrication
- Pipe and mandrel support
- Remote maintenance via internet VPN and remote connection TCP/IP
- Oil cooler

Safety devices

- Safety laser scanner for protection of bending area
- Safety cover for protection of machine bed area

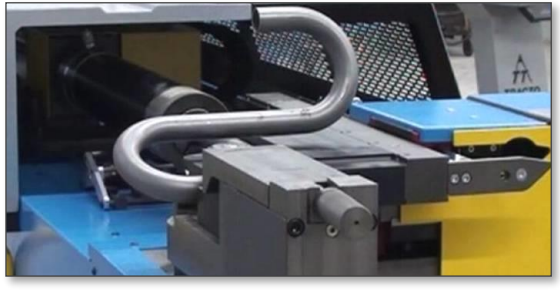
TUBOTRON 50 | CNC pipe bending machine

Technical data			
Max. pipe diameter.	50 mm	Max. pipe feed	750 mm/s
Max. bending radius	200 mm	Max. pipe rotation	120 °/s
Max. bending speed	43 °/s	Positioning accuracy	± 0.05 ° [mm]

TUBOTRON 50 | CNC pipe bending machine

Features / Equipment :

- Programmable sequence control with comfortable user guidance via SIMATIC Touch PC (alt.: SIMATIC OP)
- Hydraulic bending drive
- Hydraulic pipe clamping (pressure control)
- Hydraulic pressure die positioning, following pressure die
- Hydraulic long-neck collet chuck allows for pipe positioning in the pressure die area (with re-gripping function)
- Hydraulic and anticipated mandrel retraction
- Automatic minimum quantity mandrel lubrication
- Pipe and mandrel support
- Interface for remote maintenance
- Oil cooler



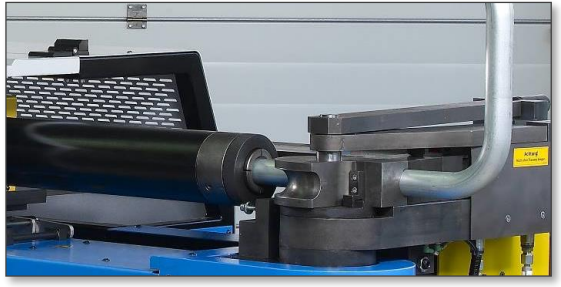
TUBOTRON 60 | CNC pipe bending machine

Technical data			
Max. pipe diameter	60.3 mm	Max. pipe feed	750 mm/s
Max. bending radius	200 mm	Max. pipe rotation	120 °/s
Max. bending speed	32 °/s	Positioning accuracy	± 0.05 ° [mm]

TUBOTRON 60 | CNC pipe bending machine

Features / Equipment

- Programmable sequence control with user guidance via SIMATIC Touch PC
- Hydraulic bending drive
- Hydraulic pipe clamping (pressure control)
- Hydraulic pressure die positioning (mechanical fine adjustment), following pressure die (linear guiding, with pressure die assist)
- Hydraulic long-neck collet chuck allows for pipe positioning in the pressure die area (with re-gripping function)
- Hydraulic and anticipated mandrel retraction
- Automatic minimum quantity mandrel lubrication
- Pipe and mandrel support
- Interface for remote maintenance
- Oil cooler



TUBOTRON 90 | CNC pipe bending machine

Technical data			
Max. pipe diameter	90 mm	Max. pipe feed	420 mm/s
Max. bending radius	250 mm	Max. pipe rotation	100 °/s
Max. bending speed	43 °/s	Positioning accuracy	± 0.05 ° [mm]

TUBOTRON 90 S | CNC pipe bending machine

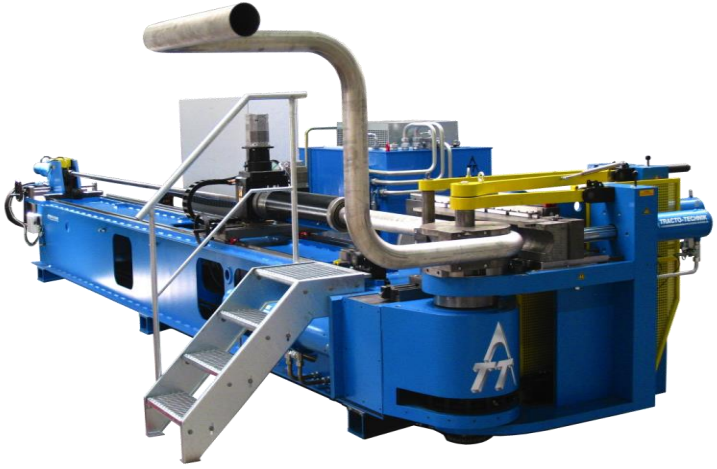
Technical data			
Max. pipe diameter	108 mm	Max. pipe feed	420 mm/s
Max. bending radius	250 mm	Max. pipe rotation	100 °/s
Max. bending speed	32 °/s	Positioning accuracy	± 0.05 ° [mm]

TUBOTRON 90 / 90S | CNC pipe bending machine

Features / Equipment :

- Programmable sequence control with comfortable user guidance via SIMATIC Touch PC
- Hydraulic bending drive
- Hydraulic pipe clamping (pressure control)
- Hydraulic pressure die positioning (distance control), following pressure die (linear guiding, with pressure die assist)
- Hydraulic long-neck collet chuck allows for pipe positioning in the pressure die area (with re-gripping function)
- Hydraulic and anticipated mandrel retraction
- Automatic minimum quantity mandrel lubrication
- Pipe and mandrel support
- Interface for remote maintenance
- Oil cooler

TUBOTRON 140 | CNC pipe bending machine



Technical data			
Max. pipe diameter	140 mm	Max. pipe feed	630 mm/s
Max. bending radius	420 mm	Max. pipe rotation	70 °/s
Max. bending speed	16 °/s	Positioning accuracy	± 0.1 ° [mm]

TUBOTRON 140 | CNC pipe bending machine

Features / Equipment :

- Programmable sequence control with comfortable user guidance via SIMATIC Touch PC
- Hydraulic bending drive
- Hydraulic pipe clamping (pressure and distance control)
- Hydraulic pressure die positioning (pressure and distance control), following pressure die (linear guiding, with pressure die assist)
- Hydraulic long-neck collet chuck allows for pipe positioning in the pressure die area (with re-gripping function)
- Hydraulic and anticipated mandrel retraction
- Automatic minimum quantity mandrel lubrication
- Pipe and mandrel support
- Quick-change system for the bending tools
- Interface for remote maintenance
- Oil cooler

TUBOTRON 170 / 170 HD | CNC pipe bending machine

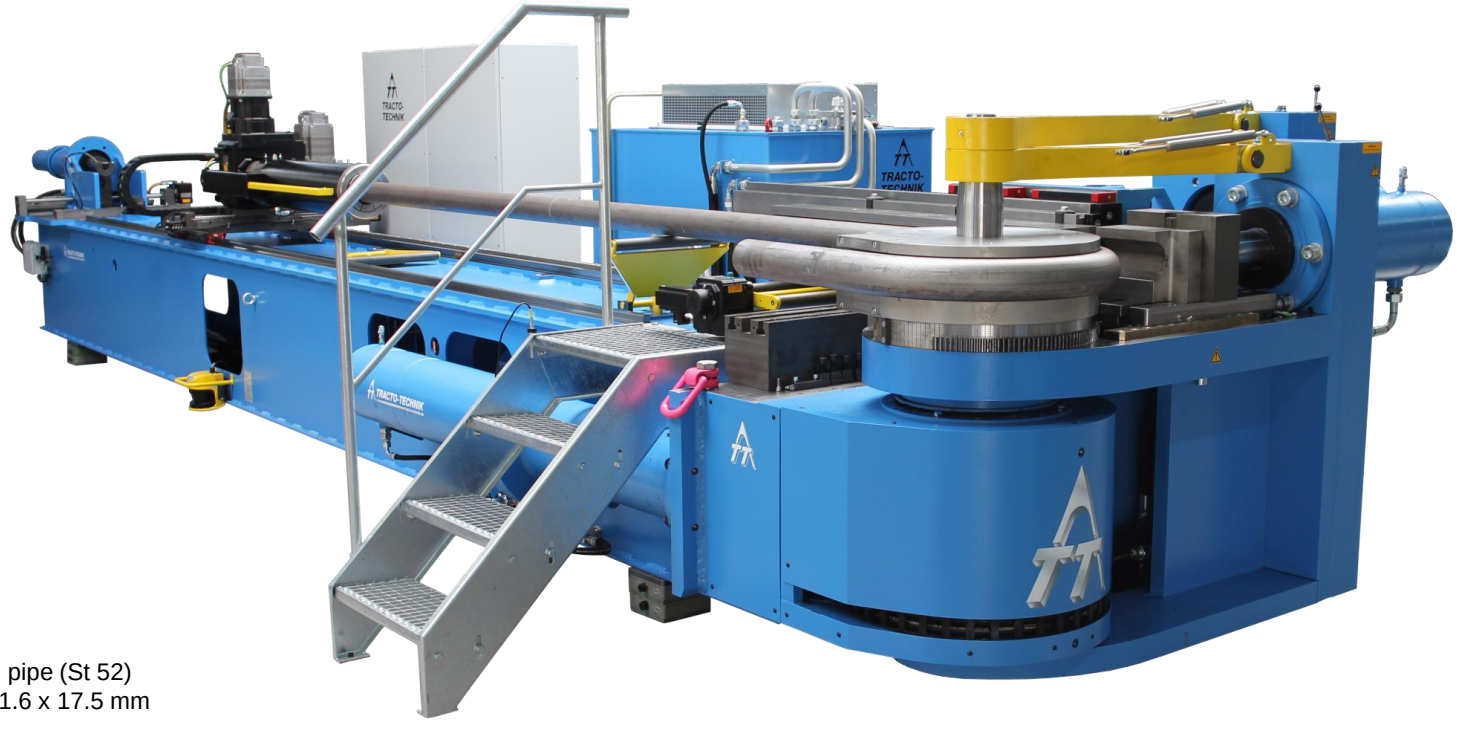
Technical data			
Max. pipe diameter	170 mm	Max. pipe feed	410 mm/s
Max. bending radius	510 mm	Max. pipe rotation	50 °/s
Max. bending speed	11,5 °/s	Positioning accuracy	± 0.1 ° [mm]

TUBOTRON 170 / 170 HD | CNC pipe bending machine

Features / Equipment

- Programmable sequence control with user guidance via SIMATIC Touch PC
- Hydraulic bending drive
- Hydraulic pipe clamping (pressure and distance control)
- Hydraulic pressure die positioning (pressure and distance control), following pressure die (linear guiding, with pressure die assist)
- Hydraulic long-neck collet chuck allows for pipe positioning in the pressure die area (with re-gripping function)
- Hydraulic and anticipated mandrel retraction
- Automatic minimum quantity mandrel lubrication
- Pipe and mandrel support
- Quick-change system for the bending tools
- Interface for remote maintenance
- Oil cooler

TUBOTRON 170 / 170 HD | CNC pipe bending machine

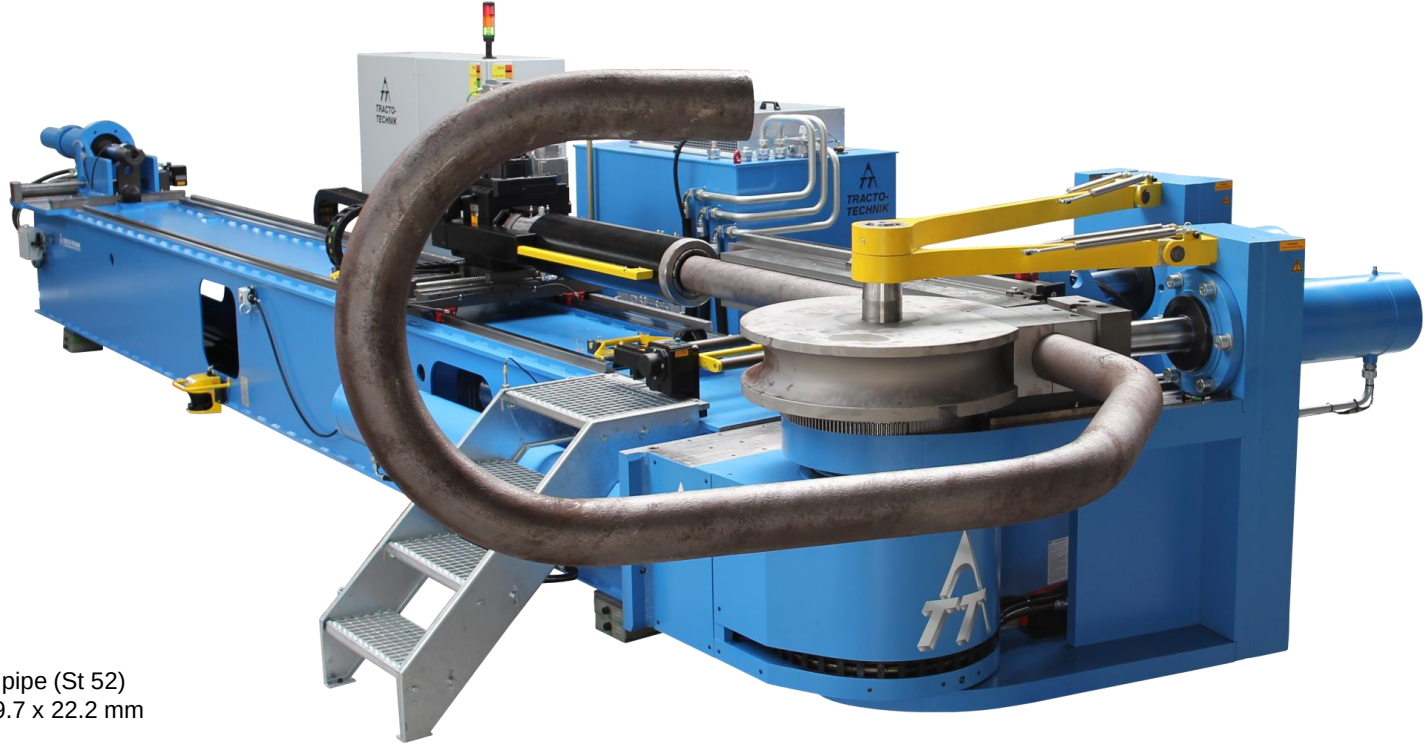


Steel pipe (St 52)
Ø 101.6 x 17.5 mm

TUBOTRON 170 / 170 HD | CNC pipe bending machine

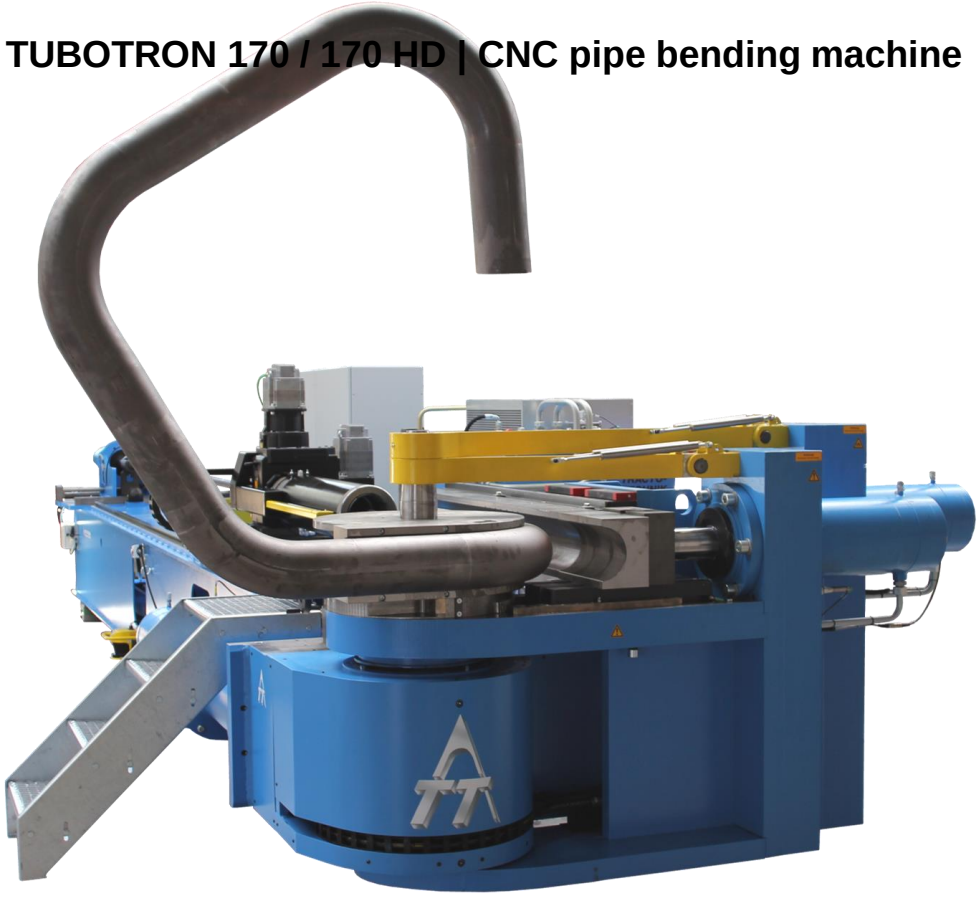
Steel pipe (St 52)
Ø 114.3 x 17.5 mm

TUBOTRON 170 / 170 HD | CNC pipe bending machine



Steel pipe (St 52)
Ø 139.7 x 22.2 mm

TUBOTRON 170 / 170 HD | CNC pipe bending machine

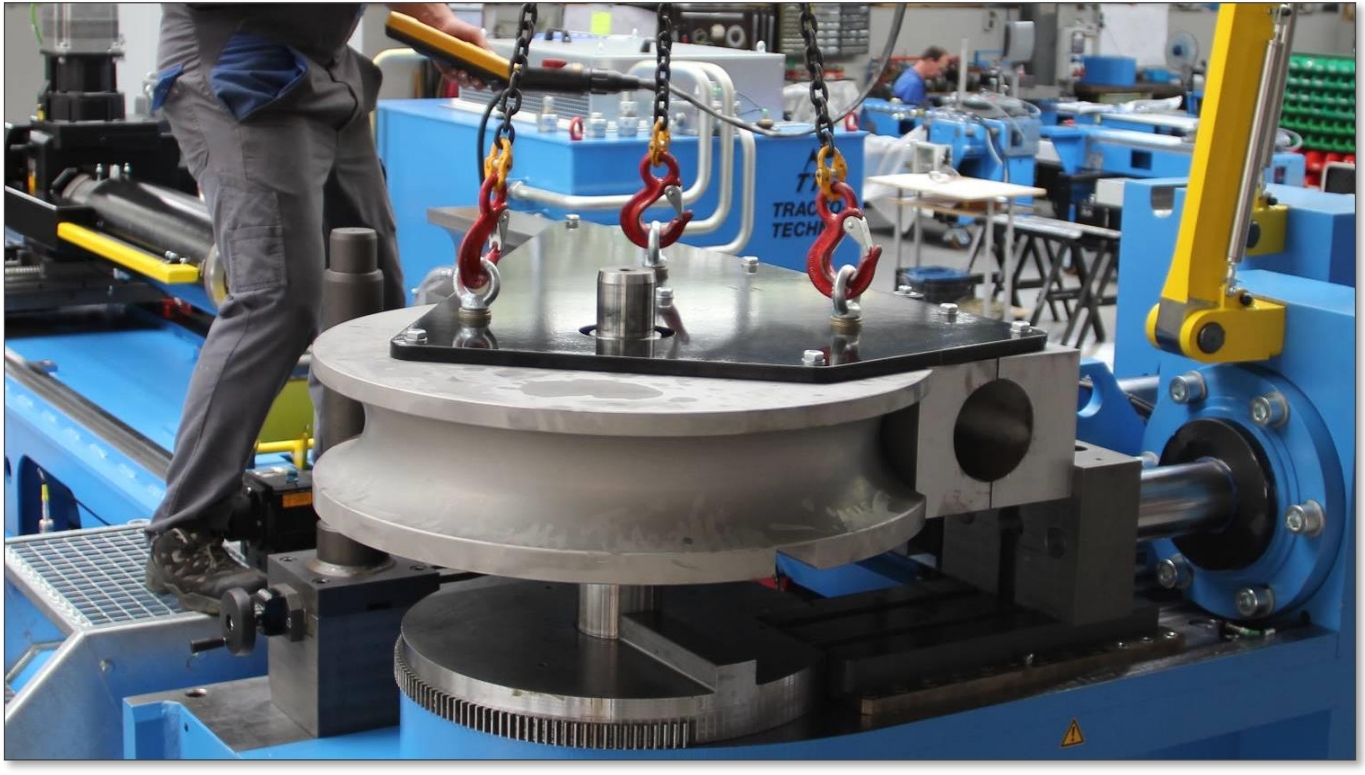


Steel pipe (St 52)
Ø 168.3 x 4.5 mm

TUBOTRON 170 | Quick-change system for the bending tools

TUBOTRON 170 | Quick-change system for the bending tools

TUBOTRON 170 | Quick-change system for the bending tools



TUBOTRON 170 | Quick-change system for the bending tools

TUBOTRON VARIO 40 RL | Multi-radii right-and-left hand bender

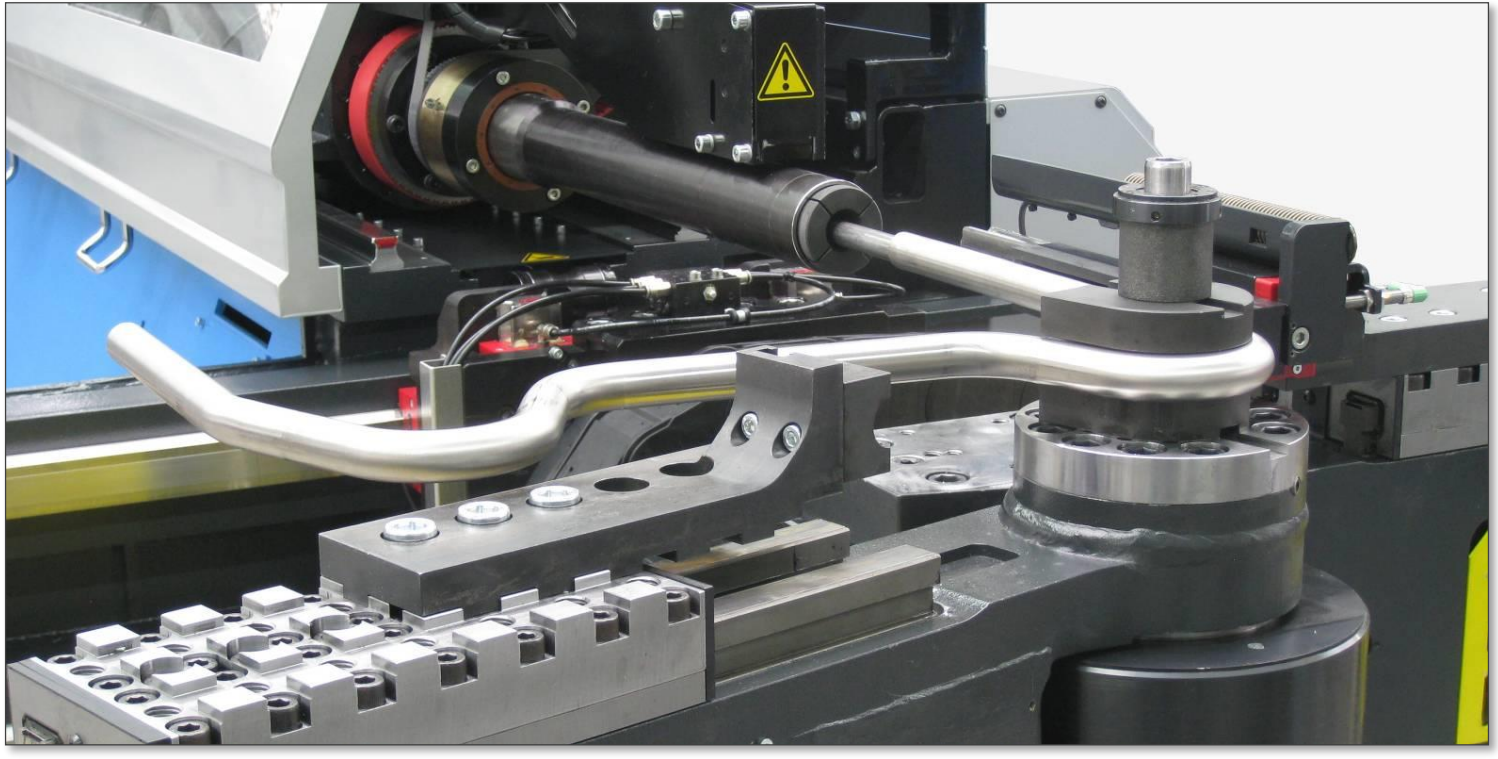
Technical data			
Max. pipe diameter	42 mm	Max. pipe feed	1500 mm/s
Max. bending radius	160 mm /∞	Max. pipe rotation	450 °/s
Max. bending speed	180 °/s	Positioning accuracy	± 0.05 ° [mm]

High-performance multi talents with “VARIO” equipment

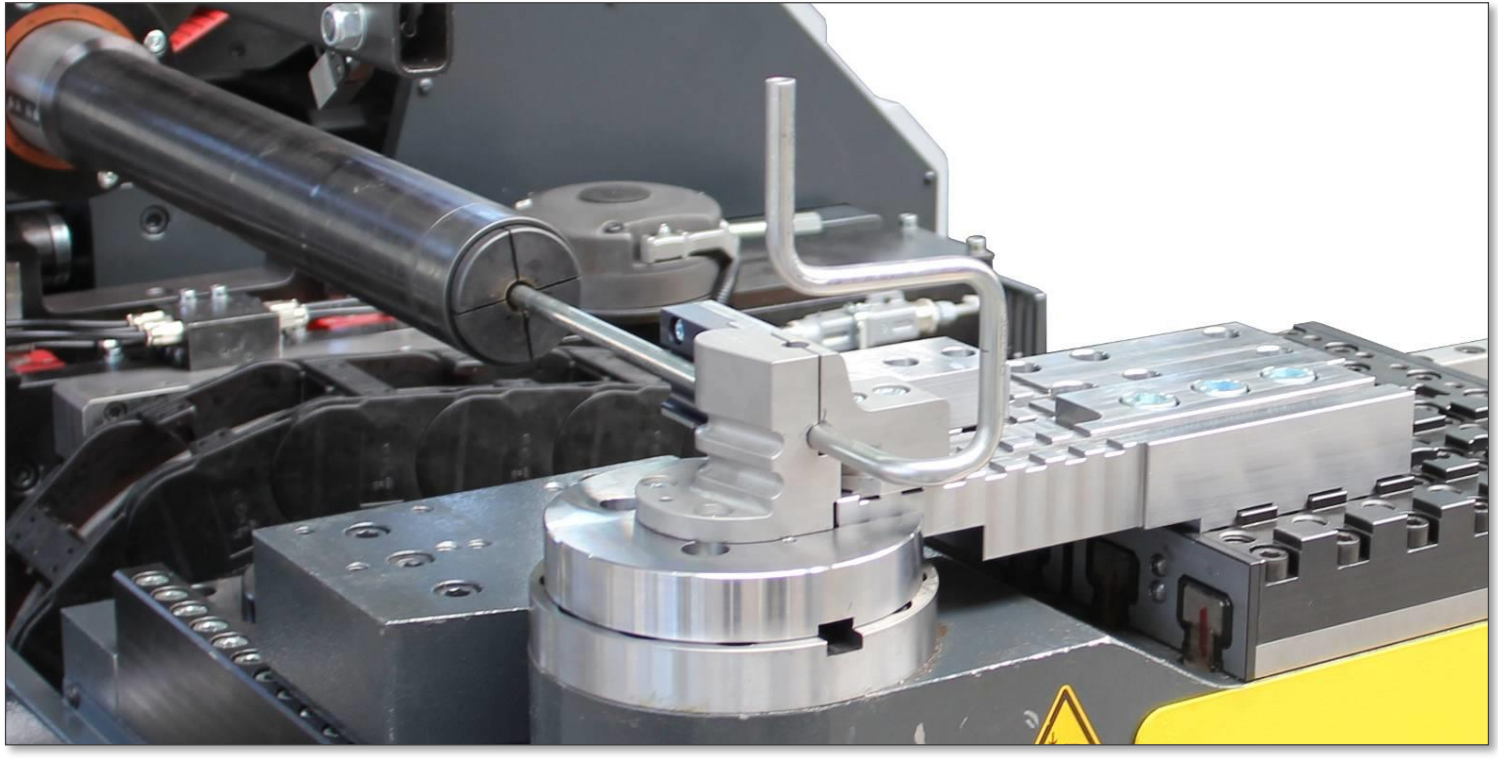
The TUBOTRON VARIO models offer the following possibilities:

- Multi-radii bending
- Right-and-left hand bending
- Freeform bending
- High bending speeds
- Maximum precision of all axes
- Comfortable operation
- Loading and unloading of workpieces can be automated

TUBOTRON VARIO 40 RL

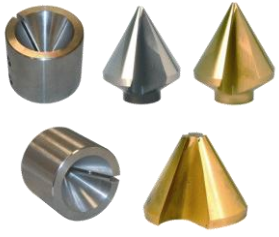


TUBOTRON VARIO 40 RL



TUBOGRAT 48/60 | Internal and external deburring of pipes up to Ø 48 (60) mm

Special deburring tools
for long service life

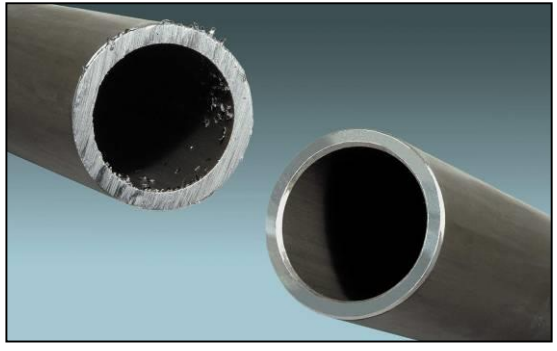


Universally applicable for all pipes with an outside diameter from 6 - 48 mm (resp. 20 - 60 mm)

Clean internal and external deburring of the pipes within only few seconds

Integrated collecting box for the metal chips provides for cleanliness at the workplace

Mobile and flexible to use



TUBOGRAT 48/60 -- Internal and external deburring of pipes up to Ø 48 (60) mm

TUBOGRAT 48

TUBOGRAT 60

Technical data	TUBOGRAT 48	TUBOGRAT 60
Pipe diameter range	6 – 48 mm	20 – 60 mm
Tooling rotation speed	140 / 280 min^{-1}	140 / 280 min^{-1}
Weight, approx.	21 kg	33 kg
Connected load	0.12 kW	0.37 kW

TUBOGRAT K | Deburring of pipe ends

Deburring of pipes with different diameter ranges (depends on the tooling)

Special deburring tools with adjustable depth stop allow for defined deburring of pipe ends recommended for thin walled pipes

Integrated collecting box for the metal chips provides for cleanliness at the workplace

Mobile and flexible to use

Pictures without safety cover

Deburring tools with adjustable depth stop

Technical data	TUBOGRAT K
Pipe diameter range	depends on tooling
Tooling rotation speed	140 / 280 min^{-1}
Weight, approx.	36 kg
Connected load	0.37 kW

TUBOFORM C | Combined cutting-ring assembly and flaring machine

Universally applicable for both, cutting-ring assembly and flaring (37° SAE, 10°) of tubes from Ø 6 to 42 mm

Short assembly times of only few seconds

Electronic pressure adjustment, manually or automatically (tool recognition system)

Faultless and accurate assembly due to automatic pressure Adjustment (tool recognition system)

Adjustable back stroke of the cylinder for optimisation of assembly times

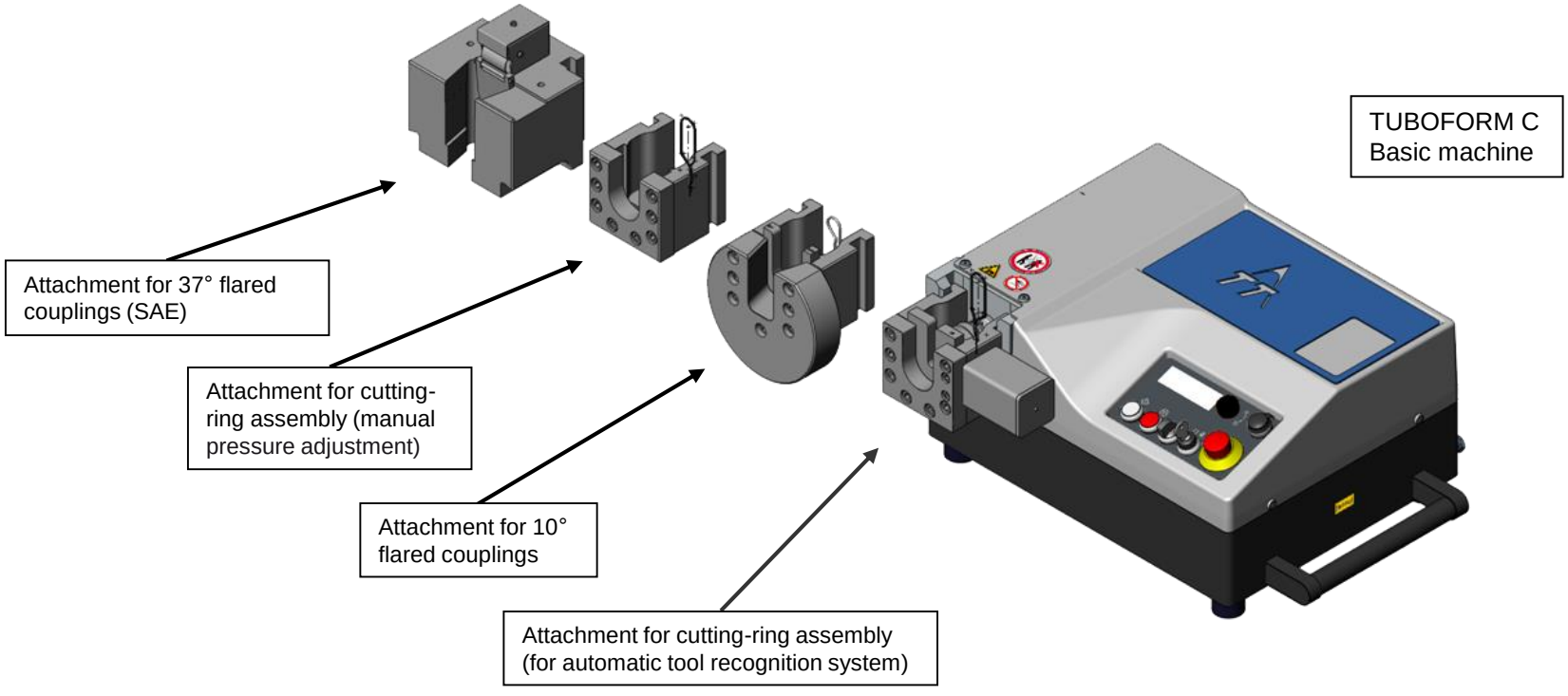
Short set-up times for tooling when changing the pipe diameter or the working method

Batch-size counter and total piece counter

TUBOFORM C | Combined cutting-ring assembly and flaring machine

Technical data	TUBOFORM C
Pipe diameter range	Ø 6 – 42 mm
Feeding force	173 kN
Feeding speed	6.9 mm/s
Hydraulics	3.7 l/min; 200 bar
Connected load	1.2 kW

TUBOFORM C | Combined cutting-ring assembly and flaring machine



PIPEFAB 4.0 | Software solutions for efficient piping

PIPEFAB BE
Bending Edition

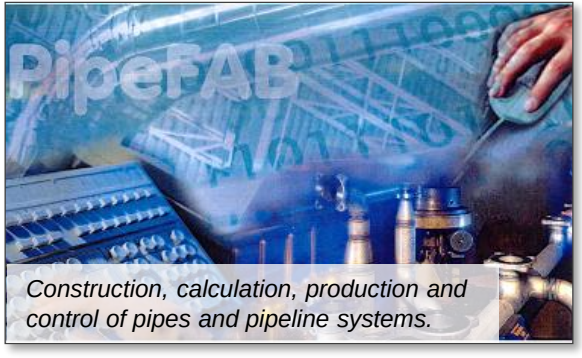
PIPEFAB HE
Hydraulic Edition

PIPEFAB ME
Master Edition

increasing functionalities

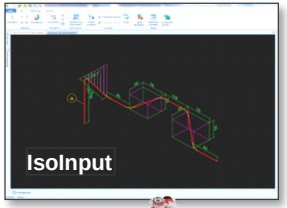
Pipe bending software

Workflow-Management-Software



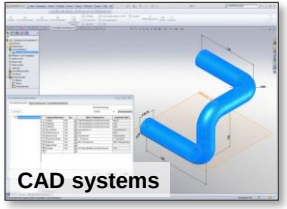
PIPEFAB 4.0 BE | Pipe Bending Software

INPUT



ISOMETRIC SKETCHING

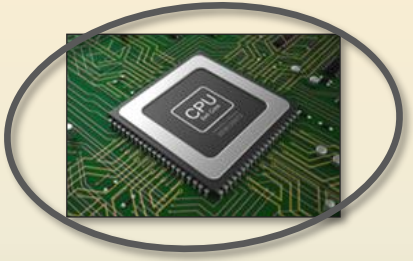
MEASURING DATA



CAD DATA (STEP / IGES)

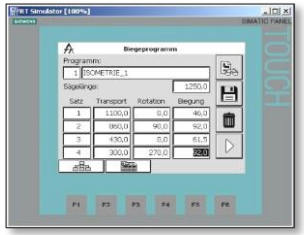
PIPEFAB 4.0 BE

Calculation

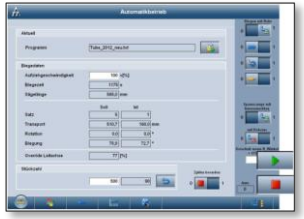


RESULTS

BENDING DATA

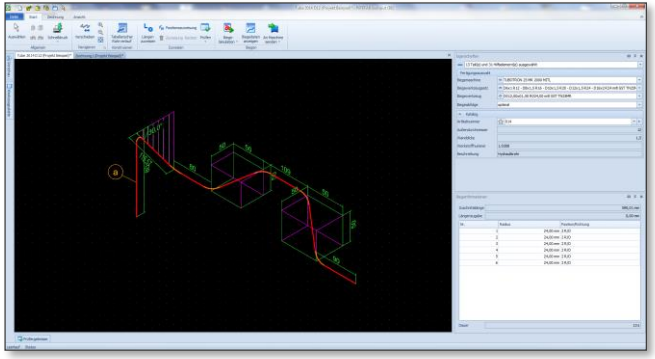
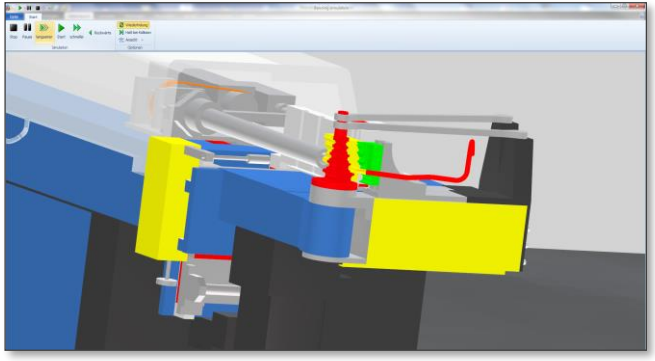
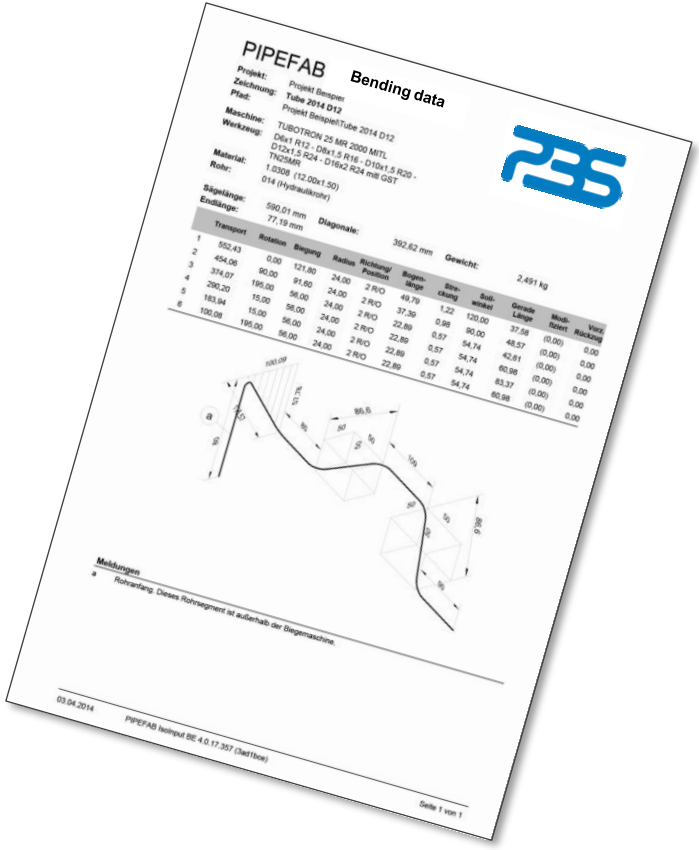


BENDING DATA CNC



PIPEFAB 4.0 BE | Pipe Bending Software

Isometric sketching and dimensioning



Collision checking and bending simulation