



Interlinked - Best in Class

# Tube & Pipe

## Bending Machines



Your local contact is:

**John Owen**

**Direct dial or text:**

**+44(0)7776 213919**

[john@t-pbm.com](mailto:john@t-pbm.com)

[www.t-pbm.com](http://www.t-pbm.com)

It will be my pleasure to assist you in all your  
tube manipulation processes



People who solve problems develop solutions and shape success



**MECHANICAL ENGINEERING  
FOR PRECISE TUBE PROCESSING  
WITHOUT LIMITS.**

**transfluid**  
The solution for tubes. 

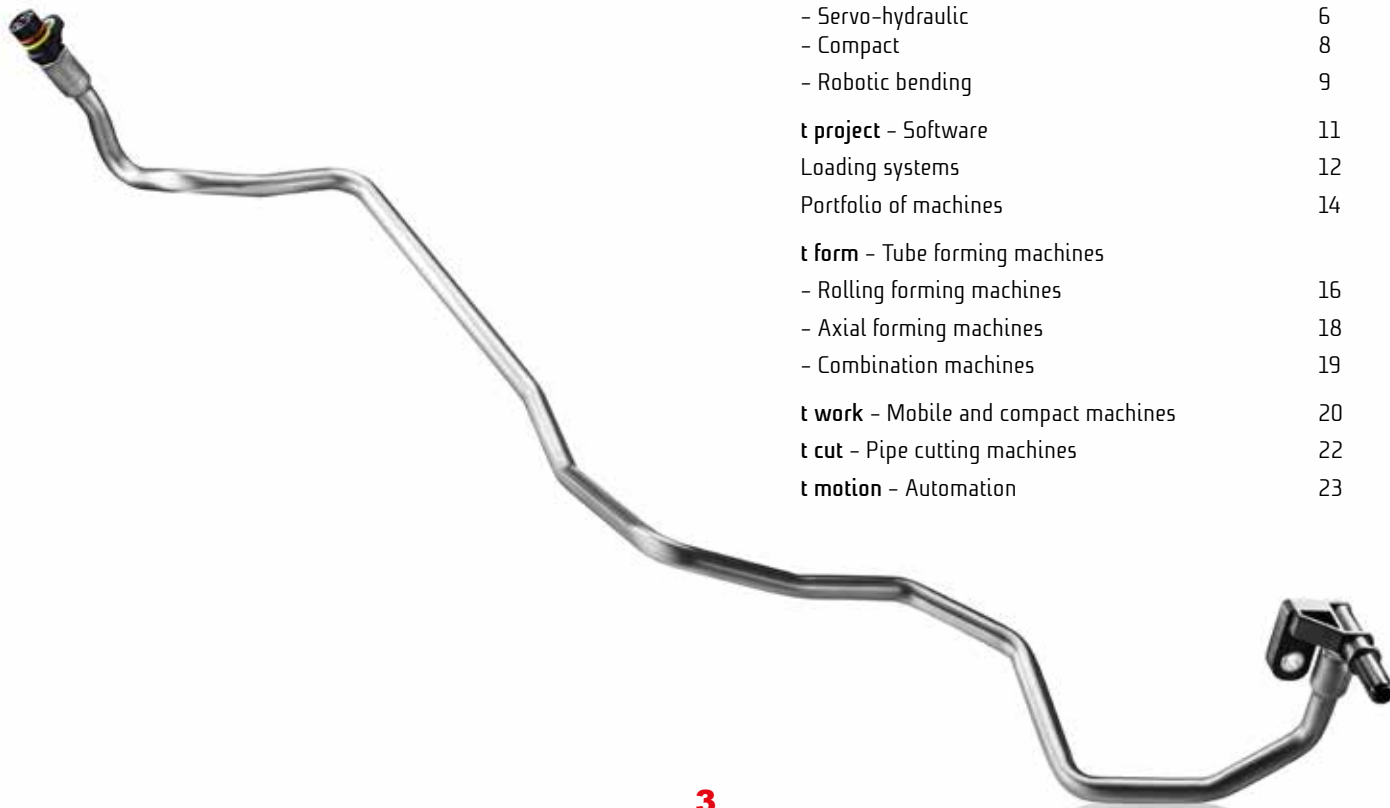


# TRANSFLUID® WE HAVE THE RIGHT SOLUTION.

With transfluid®, you bring high end technology to your production. Our solutions, services and systems are attuned to what you need to produce on the world market. For your requirements and even more complex challenges, for individual units or serial production in consistently high quality – with customised high-tech developments or our high-performance machine standards, transfluid® has the solution to advance your ideas.

## CONTENTS

<b>t bend</b> – pipe bending machines	
– Servo-electric	4
– Servo-hydraulic	6
– Compact	8
– Robotic bending	9
<b>t project</b> – Software	11
Loading systems	12
Portfolio of machines	14
<b>t form</b> – Tube forming machines	
– Rolling forming machines	16
– Axial forming machines	18
– Combination machines	19
<b>t work</b> – Mobile and compact machines	20
<b>t cut</b> – Pipe cutting machines	22
<b>t motion</b> – Automation	23



# T BEND - MANDREL BENDING MACHINES RIGHT/LEFT BENDING WITH CNC-CONTROL

**For better efficiency.** The electric axes can be programmed in synchronicity to give optimum cycle times. Tools for bending on multiple levels with automated tool change makes it possible to achieve various radii and the most complex geometries on tubes.

With our clockwise/counterclockwise bending machines – also available with push bending function – the most complex bends become reality with great accuracy.

## AVAILABLE MACHINE SIZES

Model	Pipe-ø	Max. Radius
DB 622-CNC-R/L	1/4" - 7/8"	2.6"
DB 630-CNC-R/L	1/4" - 1 1/16"	3.5"
DB 642-CNC-R/L	1/4" - 1 5/8"	6.6"
DB 2060-CNC-R/L	1/4" - 2 3/8"	7.0"



## BASIC EQUIPMENT:

- Bending head for bending right-hand and left-hand with one collet
- Bending head can be positioned horizontally and vertically
- Multilevel bending – Bending head can be equipped with multiple tool sets
- Hollow shaft for tooling for small radii
- Minimum clamping length on the tube end
- Chuck for use of segment collets
- Following pressure die for bends up to 180°
- Central lubrication
- Controlled mandrel withdrawal
- Mandrel lubrication
- t control operating software
- Air conditioning for the electrical carbinet

## OPTIONAL EQUIPMENT:

- Usable length 6.5 ft, 10 ft, 15 ft, 20 ft
- Repeated gripping
- Push bending of large bending radii
- Boosting function (Centerline booster)
- Automatic loading
- Positioning of welding seam
- Remote diagnostics
- Carriage for wiper die
- Safety Cover & Scanner
- Software t project Basic, t project Professional etc.



watch the  
movie

# T BEND - SERVO-ELECTRIC MANDREL BENDING MACHINES

**The solution for the future:** highly dynamic and flexible, thanks to the 100 % servo-electric technology. The equipment of our mandrel bending machines with fully automated controls can be customized and individually selected and adapted.

## AVAILABLE MACHINE SIZES

Model	Pipe- $\phi$	Max. Radius
DB 622-CNC-VE	1/4" - 7/8"	2.6"
DB 630-CNC-VE	1/4" - 1 1/14"	3.5"
DB 642-CNC-VE	1/4" - 1 5/8"	6.6"
DB 650-CNC-VE	1/4" - 2"	5.9"
DB 2060-CNC-VE	1/4" - 2 3/8"	5.9"
DB 2080-CNC-VE	1/4" - 3"	9.4"
DB 20100-CNC-VE	3/4" - 4"	12"
DB 40130-CNC-VE	3/4" - 5"	15.3"
DB 40150-CNC-VE	3/4" - 6"	17.7"

## BASIC EQUIPMENT:

- Bending direction clockwise
- Bending head can be positioned horizontally and vertically
- Multilevel bending - Bending head can be equipped with multiple tool sets
- Hollow shaft for using tooling for small radii
- Minimum clamping length on the tube end
- Chuck for use of segment collets
- Following pressure die for bends up to 180°
- Central lubrication
- Controlled mandrel withdrawal
- Mandrel lubrication
- t control operating software

## OPTIONAL EQUIPMENT:

- Usable length 6.5 ft, 10 ft, 15 ft, 20 ft
- Repeated gripping
- Push bending of large bending radii
- Boosting function (Centerline booster)
- Cutting during bending process
- Automated loading
- Positioning of weld seam
- Remote diagnostics
- Carriage for wiper die
- Safety cover & scanner
- Software t project Basic, t project Professional etc.



watch the  
movie

# T BEND - SERVO-HYDRAULIC TUBE BENDING MACHINES

**Stable, flexible and economical.** This series will win you over with its special stability and performance. Individual pieces and small series can be produced in an extremely economical manner with this machine concept. The use of high-value components ensures the machine's durability.

## AVAILABLE MACHINE SIZES

Model	Pipe- $\phi$	Max. Radius
DB 642-3A-CNC	1/4" - 1 5/8"	4.1"
DB 2060-3A-CNC	1/4" - 2 3/8"	5.9"
DB 2090-3A-CNC	1/4" - 3 1/2"	8.8"
DB 40120-3A-CNC	3/4" - 5"	11.8"
DB 40139-3A-CNC	1 1/2" - 5.563"	13.8"
DB 40168-3A-CNC	1 1/2" - 6 5/8"	16.7"
DB 40220-3A-CNC	1 1/2" - 8 5/8"	27.5"
DB 60273-3A-CNC	2 3/8" - 10 3/4"	32.2"
DB 80330-3A-CNC	3 1/8" - 12 3/4"	37.4"

## BASIC EQUIPMENT:

- Bending direction clockwise
- Bending head can be positioned horizontally and vertically
- Hollow shaft for using tooling for small radii
- Minimum clamping length on the tube end
- Following pressure die for bends up to 180°
- Central lubrication
- t control operating software

## OPTIONAL EQUIPMENT:

- Usable length 6.5 ft, 10 ft, 15 ft, 20 ft
- Multilevel bending - Bending head can be equipped with multiple tool sets
- Repeated gripping
- Push bending of large bending radii
- Boosting function (Centerline booster)
- Cutting during bending process
- Automated loading
- Positioning of weld seam
- Remote diagnostics
- Carriage for wiper die
- Controlled mandrel withdrawal
- Mandrel lubrication
- Safety cover & scanner
- Software t project Basic, t project Professional etc.



watch the  
movie







## T BEND - COMPACT MANDREL BENDING MACHINES

**Compact and very efficient.** Our fully hydraulic mandrel bending machines deliver outstanding bend quality and very simple handling, with SPS control for preselection and storage of bending angles via touch panel.

### AVAILABLE MACHINE SIZES

Model	Pipe- $\phi$	Max. Radius
DB 642 K	1/4" - 1 5/8"	4.1"
DB 2076 K	1/4" - 3"	5.9"
DB 20101 K	1/4" - 4"	9.8"

### OPTIONAL EQUIPMENT:

- Usable length extension
- Length stop device
- Off-set bending device
- Digital display of the length and rotation, with tolerance range
- Controlled mandrel withdrawal
- Mandrel lubrication
- Following pressure die
- Additional functions can be added (pre-assembly, flaring, de-burring, cutting)



watch the  
movie

## T BEND – ROBOTIC BENDING TECHNOLOGY

**Maximum bending freedom.** The robotic bending technology combines the greatest versatility in manufacturing with simple handling. The robot head is equipped with a clockwise and counterclockwise bending head, so that bending can happen in both directions once clamped.

The eight synchronized and fully-electric axes give maximum versatility when processing tubes. The bending process on tubes, including the processing at the ends and add-on components can be done without any problems. The add-on components can be positioned automatically, if needed. A radius/plane changer with up to 6 tools per bending system is integrated to give maximum flexibility.

### MACHINE SIZE

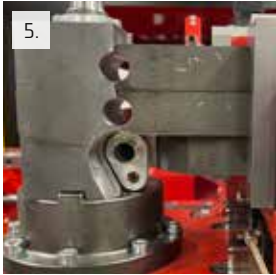
DB 622-ROBO-R/L 1/4" – 7/8"

### OPTIONAL EQUIPMENT:

- Multilevel bending
- Push bending of large bending radii
- Automated loading
- Positioning of welding seam

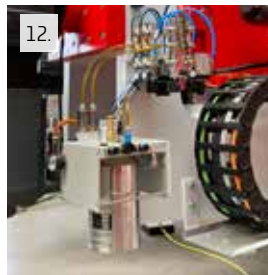
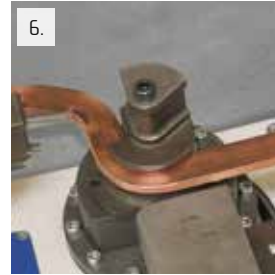


watch the  
movie



### BASIC & OPTIONAL EQUIPMENT:

1. Bending mandrels in different contours or materials
2. Wiper die, bending mandrel and chuck with segment collets
3. Push bending function
4. Powerful servo motors
5. Bending tools for tubes with already formed tube ends
6. Specific contoured tools for bending of wire or square material
7. Integrated cutting device
8. Following pressure die
9. 360° rotating bending head right/left
10. Clamping of end-finished tubes
11. Bending without mandrel for small tube diameters
12. Central lubrication
13. Powerful control unit
14. Hand scanner for loading bending programs





## T PROJECT – SOFTWARE: VIRTUAL SUPPORT FOR HIGHER EFFICIENCY

**Fewer steps to the finished workpiece:** With t project, you can see all the variables of the bending process before starting production. Even complex bending geometries can be planned and executed in a material-adapted and collision-free manner. The virtual bending simulation determines exact bending times and cutting lengths and checks tube geometries for feasibility in advance.

Tube data and bending results are documented with accuracy, and they can then be replicated 100%. The common interfaces are available for the import and export of data and connection to PDA or ERP over the network.

### Our solution for your individual requirements

We have developed four versions of our t project software, which can be used as single or as networked versions. t project can be integrated centrally in the company's internal security system for optimum data security. Customer-specific modifications, expansions or interfaces are easily achieved.

#### t project Basic

Input and calculation of tube processes

- Direct conversion of isometrics into bending data
- Automatically incorporates correction values and over-bending parameters in bending program
- The dimension of the spatial diagonal from the beginning of the pipe A to the end of the pipe B enables the operator to easily check the bent part manually
- The software can interface with measuring devices and CAD and Office programs. Supported file formats include IGES, STEP, JT and PCF



#### t project Professional

Input and calculation of tube processes, including collision testing

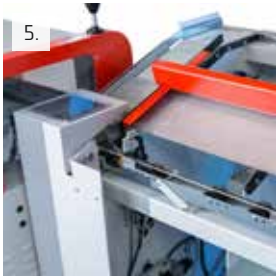
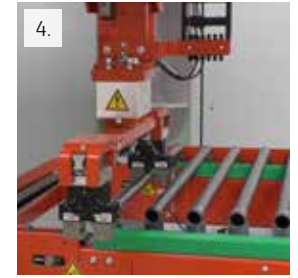
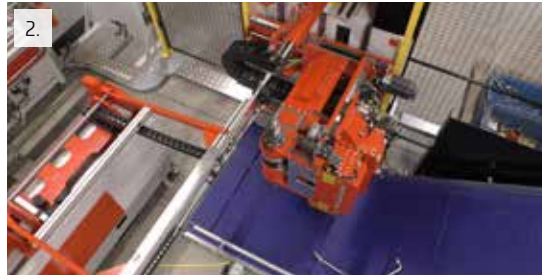
- Same basic features as t project Basic
- Necessary tube length extensions are detected and added
- Additional production safety: the collision test will determine the feasibility of the tube geometry before the actual bending process, which prevents collisions with the machine itself or its surroundings
- The software will suggest alternative options in case of predicted collisions
- The software will take all the measurements for the collision test from the CAD model of the bending machine
- Surrounding features in the room can also be included in the collision test (pillars, shelves, floor etc.)
- It is also possible to run simulations with tubes that already have flanges or other forming features

#### t project Draft

Tablet version for mobile use

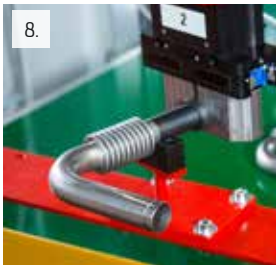
#### t project PM-N

Project management software



### LOADING SYSTEMS:

1. Alignment station
2. Swivel arm feeder
3. Conveyor feeder
4. Chain feeder
5. Loading tables
6. Bowl feeder
7. Step feeder



### HANDLING AND GRIPPER SYSTEMS:

8. Outer gripper
9. Handling robots
10. Rotating module
11. Overfloor handling
12. Overfloor handling
13. Underfloor handling
14. Inner and outer gripper





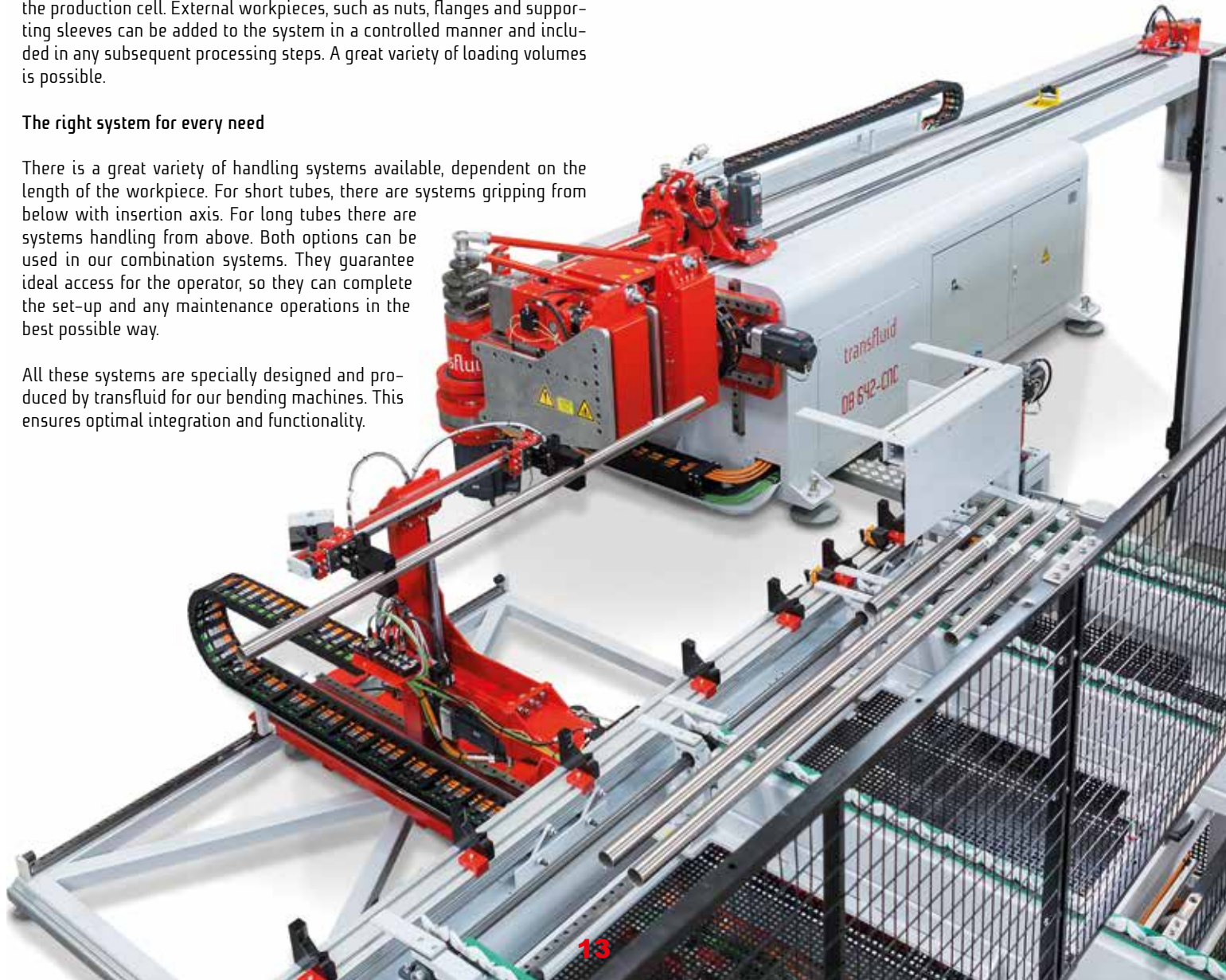
## LOADING & UNLOADING SYSTEMS DESIGNED AND MANUFACTURED BY TRANSFLUID®

We offer a great variety of loading systems for all the machines, depending on the material, tube diameter and tube length. Tubes that have already been formed and have added components can also be loaded. The appropriate orientation is therefore very important, when loading the tube into the production cell. External workpieces, such as nuts, flanges and supporting sleeves can be added to the system in a controlled manner and included in any subsequent processing steps. A great variety of loading volumes is possible.

### The right system for every need

There is a great variety of handling systems available, dependent on the length of the workpiece. For short tubes, there are systems gripping from below with insertion axis. For long tubes there are systems handling from above. Both options can be used in our combination systems. They guarantee ideal access for the operator, so they can complete the set-up and any maintenance operations in the best possible way.

All these systems are specially designed and produced by transfluid for our bending machines. This ensures optimal integration and functionality.





# Our portfolio of machines

t bend – Robotic bending technology



t bend – Mandrel bending machines with servohydraulic motors



t bend – Fully electric mandrel bending machines



t bend – Fully electric mandrel bending machines – 360° rotating bending head right/left



t bend – Fitting bender



t bend – Compact mandrel bending machines



t bend – Mobile bending machine



t form – UMR Rollforming machines



t form – AM Collaring machine



t cut – RTO Chipless orbital cutting machines



t form – REB Axial forming machines



t form – SRM Rollforming machines



t form – REB/SRM Combination machines



t work – Tube chamfering machines – Pre-assembly devices – Flaring machines – Tube deburring machines – Electro-hydraulic drive unit



## T FORM – TYPE UMR ROLLFORMING MACHINES

**Powerful and fast forming.** The type UMR tube forming machines use smart operating technology with many predefined settings that can be retrieved automatically to achieve perfect mirror-like surfaces.

When producing flares with 20°–90° angles, with a clamping length of 1 x D, the machine achieves perfect sealing surfaces. Flaring up to 90° can be produced in a single cycle. Tools can be changed extremely quickly. With the appropriate tools, the machine can also close tube ends.

### AVAILABLE MACHINE SIZES

Model	Pipe- $\phi$	Wall thickness max.	Cycle time
UMR 628	1/4" – 1 1/16"	.095"	4 – 10 Sec.
UMR 642	1/4" – 1 5/8"	.148"	4 – 15 Sec.
UMR 30115	1 1/8" – 4.5"	.148"	10 – 45 Sec.



### EQUIPMENT OPTIONS:

- Automatic release
- Foot-switch
- Microlubrication system
- Processing of support rings



watch the  
movie

## T FORM - TYPE SRM ROLLFORMING MACHINES

**All the options in one single machine:** forming, cutting, post-bending cutting, threading. Our rotational technology increases the possibilities of forming on tubes with minimal expenditure on tools. All the drives are servo-electric by design and, if needed, CNC-operated. In our SRM rollforming machines, all the settings are preloaded, so there is no longer any need for costly adjustments.

Different tool variants further expand the processing possibilities for chip-less cutting or post-bending cutting. The machines can produce internal and external profiles and can also roll in synchronicity thanks to a special tool head (inside/outside).

### AVAILABLE MACHINE SIZES

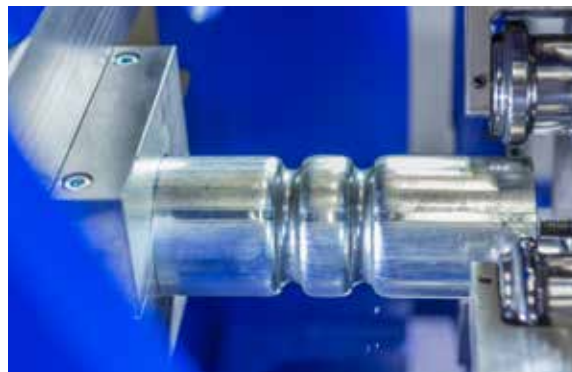
Model	Pipe- $\varnothing$	Wall thickness max.	Cycle time
SRM 622	3/16" - 7/8"	.035"	4 - 10 Sec.
SRM 1565	5/16" - 2 1/2"	.058"	8 - 14 Sec.
SRM 40127	1 1/2" - 5"	.072"	15 - 50 Sec.
SRM 50176	2" - 7"	.120"	15 - 60 Sec.



watch the  
movie

### EQUIPMENT OPTIONS:

- Processing unit with radial and axial servo-electric advancement
- Rollforming unit with push bending through CNC-control
- Ejector for controlled unloading of the tube
- Flaring
- Microlubrication systems
- Coded tools
- Belt filter system



# T FORM - AXIAL FORMING MACHINES

## ACCURATE FORMING WITH FAST TOOL CHANGE.

Our type REB axial forming machines, with their compression power of up to 287,000 lbs, are particularly well-suited to effortlessly master complex geometries. With up to 6 forming steps in combination with an additional clamping unit, they will satisfy almost all requirements. The operation is simple and intuitive with a touch panel. The sequence control makes each separate movement of the respective forming step user-friendly and fully programmable.

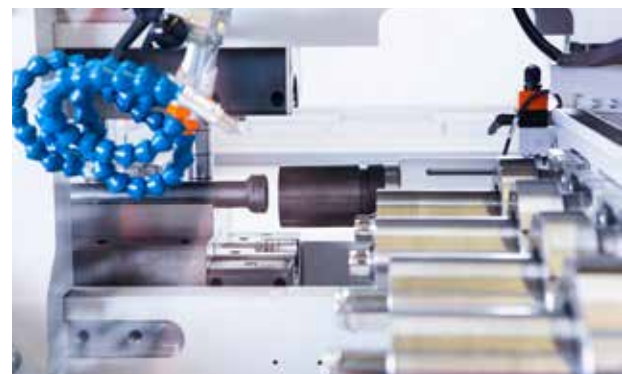
We offer the option to equip our systems with electric or hydraulic-numerical drives. These forming processes can be completed stepwise in transfer systems to achieve very short cycle times. Simultaneous axis movements ensure fast production processes and an efficient and highly dynamic production.

Model	Pipe- $\phi$	Forming length	Cycle time/Stage
REB 420	3/16" - 3/4"	2 3/8"	2-3 Sec.
REB 632	1/4" - 1 1/4"	3 1/8"	2,5-3,5 Sec.
REB 645	1/4" - 1 3/4"	3.5"	3-5 Sec.
REB 660	1/4" - 2 3/8"	7.0"	5-8 Sec.



### EQUIPMENT OPTIONS

- Servo-electric control of forming axis
- Up to an additional 6 forming steps
- Supplementary clamping device
- Microlubrication system
- Tool coding
- Tool recognition
- Loading and positioning of components



watch the  
movie



## T FORM - COMBINATION MACHINES IN FORM, DOUBLE STRENGTH.

For the optimum processing of your individual requirements, we simply combine our transfluid forming techniques, particularly the axial forming and the rolling forming. The additional clamping unit makes even extreme forming feasible in one work sequence. The cutting before axial tube forming is also possible, as is the rolling forming of a pre-formed geometry. That saves you valuable time.

### A strong partnership: axial forming and rolling forming

Our t form combination machine is the perfect union of axial and rolling tube processing, with up to 6 axial forming steps, two rolling forming stations, two powered tool holders for flange orientation and an additional clamping unit. The horizontal clamping system makes the processing of bent tube geometries possible.

### EQUIPMENT OPTIONS

- Up to 6 additional forming steps
- Additional rolling forming stations
- Rolling forming unit with free-form function and CNC control
- Additional clamping units
- Microlubrication system
- Automatic release
- Feeding of external workpieces
- Positioning of the flaring/workpieces with servo-electric rotation of the tools
- Holder for rotating tools (deburring, camfering, facing, rolling)



watch the  
movie



# MOBILE AND COMPACT T WORK TUBE BENDING MACHINES: THE SMART SOLUTION FOR BENDING TUBES.

## MOBILE BENDING MACHINE

The smart companion for many different sites: a great variety of machine sizes are available, from 1/4" to 4 1/2". This unmatched, tried and tested transfluid classic is a compelling option, thanks to its many benefits, its good price/performance ratio, its very simple but effective technology, and its unique quality.

### Machine sizes/tube size

MB 642	1/4" - 1 5/8"
MB 2060	1/4" - 2 3/8"
MB 3080	1/4" - 3 1/2"
MB 30115	1/4" - 4 1/2"

### Equipment options:

- Saw
- Deburring unit
- Installation equipment (cutting ring/flaring tool)



## Tube deburring machine

The tube deburring machines with servo-electric drive offer external and internal deburring of hydraulic tubes. The durable and efficient milling tools can debur any cuts.

The tools are easy to remove, sharpen and refit.

### TUBE SIZES:

- 1/4" - 1 5/8"
- 3/4" - 2 3/8"

## Rotational forming machine

With our forming machine with rotating head you can achieve high-quality results. The forming of tube ends with angles between 37° and 90° is tool-dependent and possible with the rotating method. Perfect sealing surfaces and short clamping length can be achieved with ease.

- Manual clamping
- Manual advancement with hand pump
- Electric rotational tool holder
- Working range: 1/4" - 1 5/8"



## WE COMBINE MINIMUM EFFORT WITH MAXIMUM PERFORMANCE



### Tube chamfering machine

The transfluid tube chamfering machines are fitted with different drives and tools for the different tube sizes. It is possible to chamfer tubes with wall thickness up to 3/4" with special blade-heads.

The whole range of tube diameters is covered without having to change tools.

- For the preparation of the welding seam of tubes with a 30° angle
- Other angles available on request



### Pre-assembly devices, automatic orientation and pressure recognition

The efficient assembly solution for medium and large series for the pre-assembly of cutting rings and multiple cutting rings for DIN 2353. The machine can be fitted to be mobile or stationary.

- Fast cycle times
- Secure processing (pressure and direction control)
- Digital input and storage of process data
- High assembly freedom
- For tubes from 1/4" - 1 5/8"



### Electro-hydraulic drive unit

As combination or individual machine for classic cutting ring fitting and 37° flare: our devices with electro-hydraulic drives work with great precision.

The light, convenient and powerful transfluid pre-assembly and flaring devices for external assembly are the perfect starting point for reliable quality assembling.

- Suitable for tube sizes between 1/4" - 1 5/8"
- Interchangeable attachments

# T CUT - CHIPLESS ORBITAL CUTTING MACHINES

**Created for precision.** Our chipless orbital cutting machines make precise cutting results possible. Your tubes can be formed immediately afterwards. That saves time and money.

## AVAILABLE MACHINE SIZES

Model	Pipe- $\phi$	Wall thickness max.	Cycle time
RTO 628	1/4" - 1 1/8"	.072"	2.2 - 8.0 Sec.
RTO 650	1/4" - 2"	.095"	2.2 - 8.0 Sec.
RTO 2080	3/4" - 3"	.120"	6 - 10 Sec.
RTO 20100	3/4" - 4"	.120"	6 - 12 Sec.

## EQUIPMENT OPTIONS:

- Special software to optimize number of cuts
- Marking systems

### Different tube loading concepts:

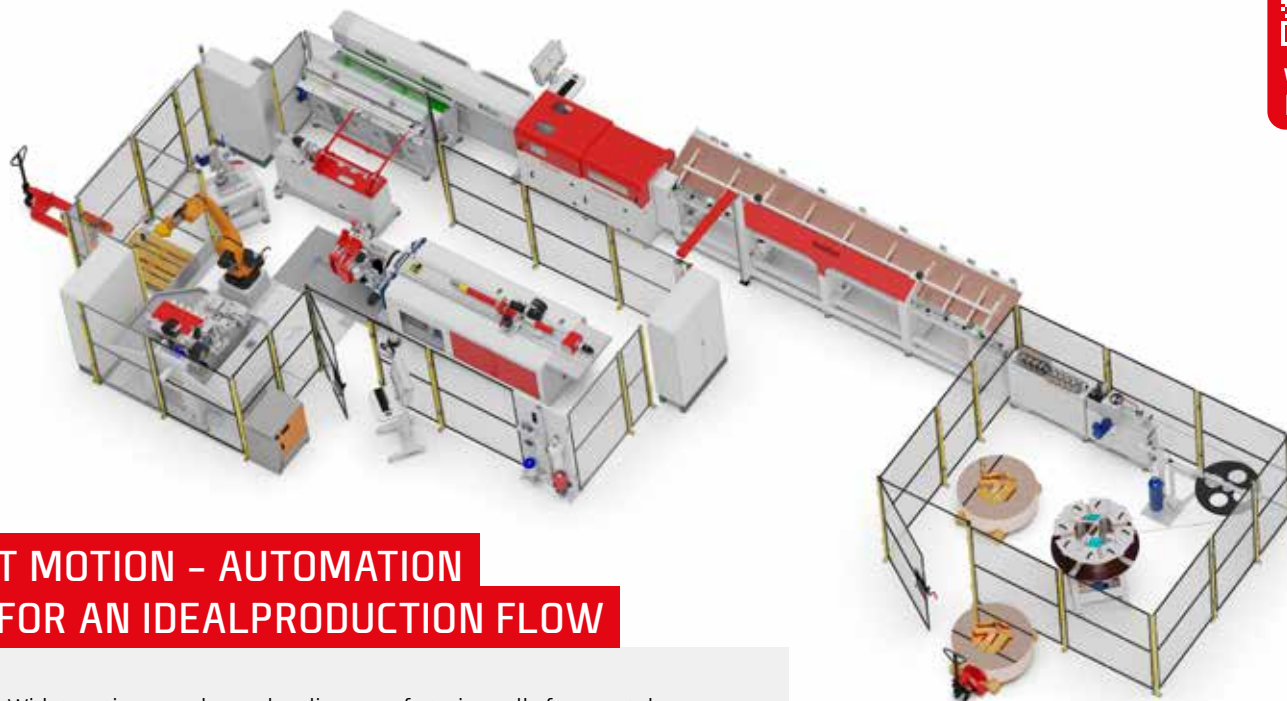
- Decoiler with pulling unit for tube coils
- Straightening unit for different tube diameters and straightness requirements
- Loading table for bars
- Belt feeding systems for bars, large-diameter tubes and long tubes
- Step belt feeding systems for bars, small-diameter tubes and long tubes

### Flexible release:

- Separate, controlled release for cut workpiece and scrap
- Sorting system for up to eight tube cuts
- Direct transfer to next step in the process



watch the  
movie



## T MOTION - AUTOMATION FOR AN IDEAL PRODUCTION FLOW

With t motion, we plan and realize manufacturing cells for your tube processing with optimized material flow. We design a layout to match your requirements and integrate all the required processing and handling options. With more than 25 years of experience in automation, we can offer you the solution for tubes at the highest level.

On request, we can include product marking, as well as optical, contactless camera control systems for comprehensive control of geometries or surfaces. The option to punch holes can also be integrated, as well as transfer lines to achieve the shortest possible cycle times, or systems for loading and controlled unloading, for your very own, customised automation solution.

**Plug in and Produce** – With t motion, you are production-ready from the start and flexible in batch production, without any time delay.

**Customizable** – Further process steps, like loading and unloading systems or additional tube processing tasks, can be easily integrated.

**Industry 4.0** – Interfaces with data capture systems for consumption and operation enable the digitalization and evaluation of the data.

**Fast and accurate** – The high degree of automation means fast cycle times for efficient manufacturing.





Interlinked - Best in Class

# Tube & Pipe

## Bending Machines



Your local contact is:

**John Owen**

**Direct dial or text:**

**+44(0)7776 213919**

[john@t-pbm.com](mailto:john@t-pbm.com)

[www.t-pbm.com](http://www.t-pbm.com)

It will be my pleasure to assist you in all your  
tube manipulation processes



People who solve problems develop solutions and shape success