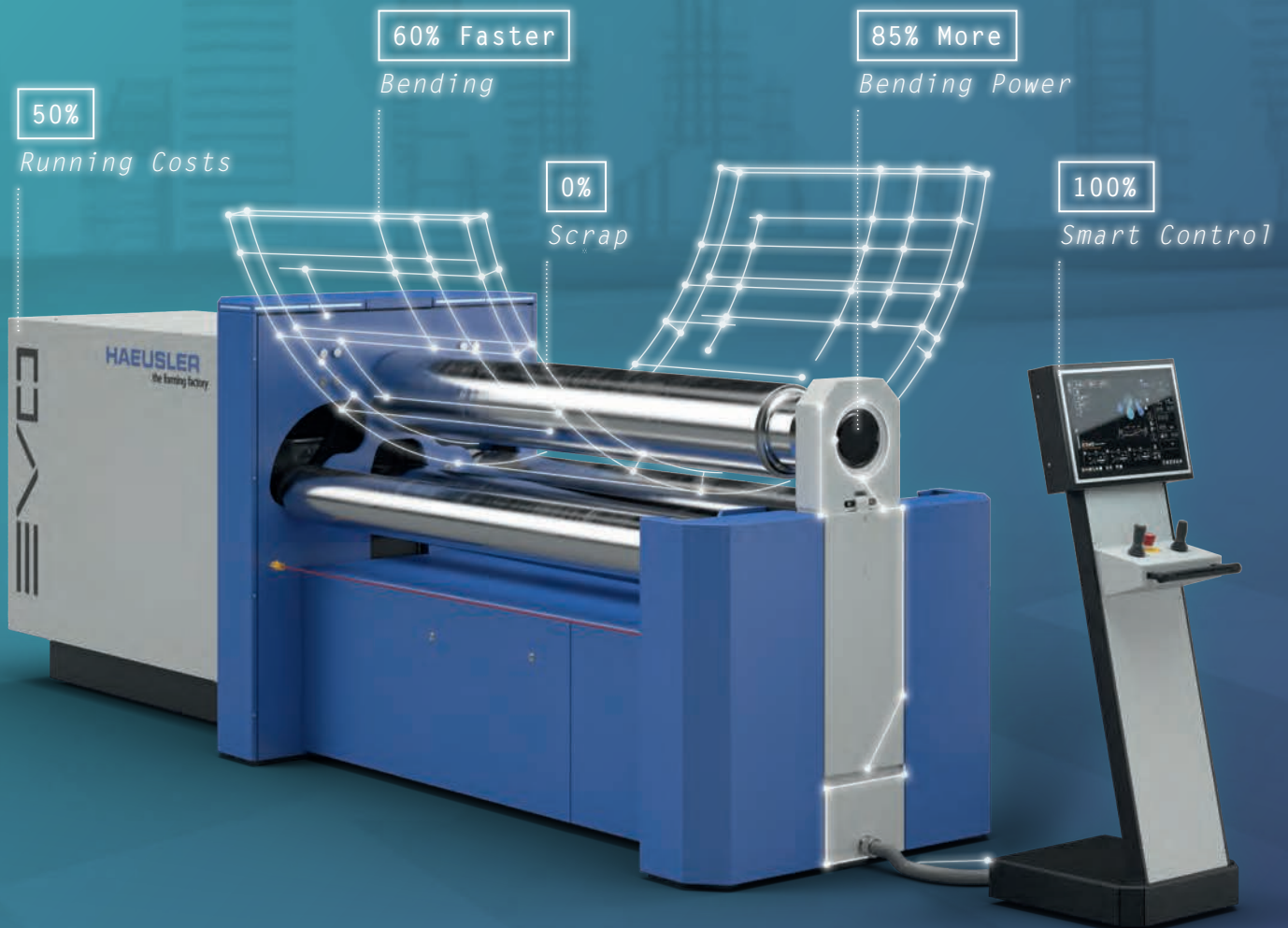


EVOC

THE BENDING EVOLUTION...



4 - ROLLER PLATE BENDING MACHINE



THE BENDING EVOLUTION *BEGINS NOW...*

In spring 2017 we started with the vision to create a bending machine, which is changing the way of bending, a machine which would not require any specific experience to reach perfect results, a machine which cuts the entire machine costs in half, a machine which is changing the market and a machine which deserves the name **HAEUSLER!**

In autumn 2018 we are now looking to the result of this intense and challenging research, developing and design period. Today we are

extremely proud to present our revolutionary new **4-ROLLER PLATE BENDING MACHINE EVO** – a machine that fulfills all our visionary goals, and even more – EVO is the worldwide first bending machine with integrated **ARTIFICIAL INTELLIGENCE** – of course protected by patents. What it means? Perfect bending results right from the first workpiece...!

We are looking forward to welcome you to the EVO-family...

Yours sincerely

Jürgen Freund, CEO of HAEUSLER

EVO

SUPERIOR TO EVERYTHING YOU KNOW



MOST INTELLIGENT CONTROL
WIDEST BENDING RANGE
BEST COST EFFICIENCY

ADVANTAGES AT A GLANCE

Reduced running costs, increase in productivity and super easy to use: EVO comes with a bunch of outstanding benefits.

• **THE EVO** is packed with several innovative and patented features that will **increase your production range** and productivity and at the same time offers you the **lowest Total Costs of Ownership**. In addition to the high-quality hardware that was used on this machine, we are very pleased to present the latest control

system **BENDTRONIC** which will be a standard on all EVO machines. This patented control system is the only one that uses **artificial intelligence** to **optimize your bending result** right from the beginning. At the same time, it is intuitive and extremely user-friendly.



REDUCTION OF RUNNING COSTS

The Haeusler Hybrid Drive System HHDS reduces maintenance costs by 50% and enables an increase in rotation speed by 60%

AVOIDANCE OF DOWNTIMES

The use of optionally available special sensors enables predictive maintenance of the machine. This allows unscheduled downtime to be reduced

MAXIMIZATION OF BENDING RANGE

With the newly developed and patent pending VSA technology a performance increase of up to 85% is achieved

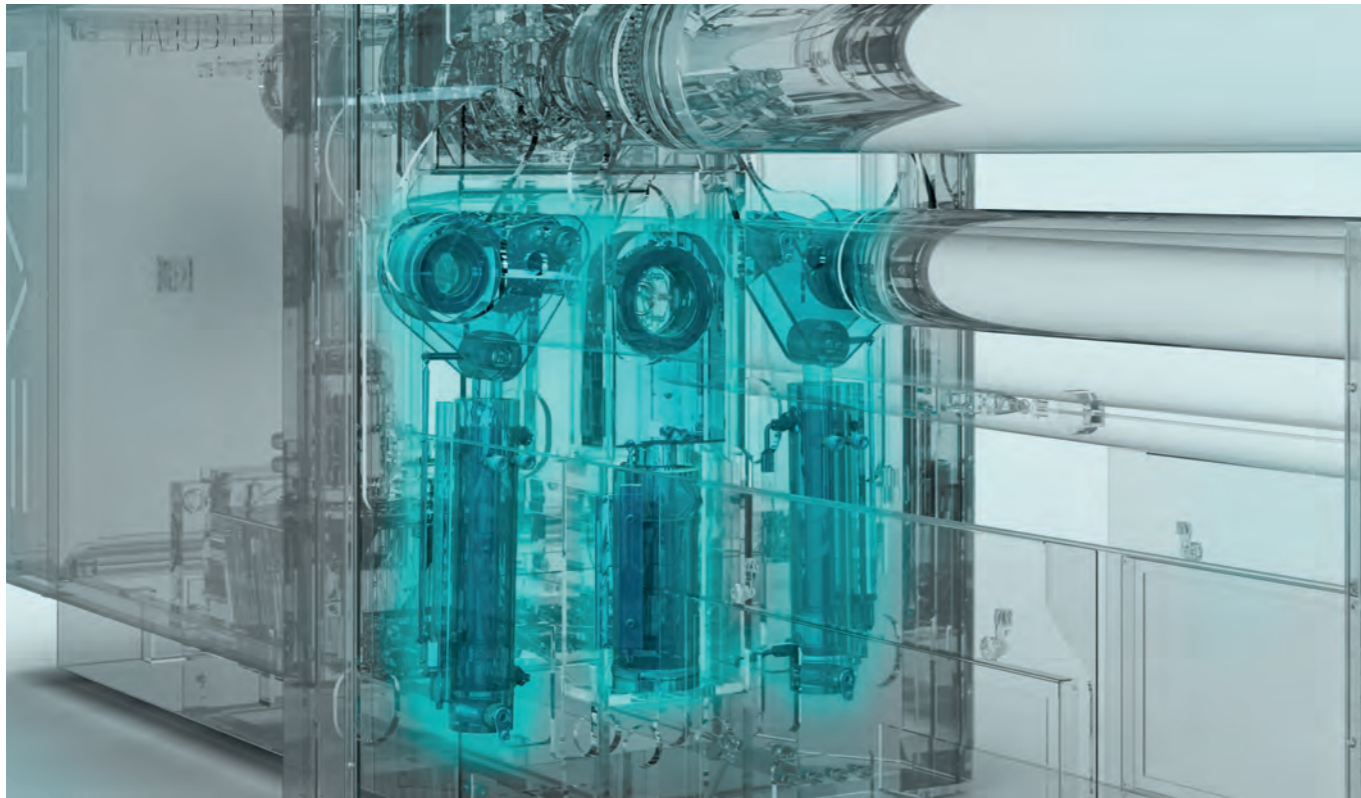
MODERN AND FUNCTIONAL DESIGN

Modern appearance, high protective function and at the same time optimum operability. These criteria were decisive in the development of the machine

BENDING BECOMES CHILD'S PLAY

The latest generation of the patented HAEUSLER control system BENDtronic 2.0 with integrated artificial intelligence allows the operator to achieve perfect bending results right from the beginning





EVO IS RANGE EXTENSION

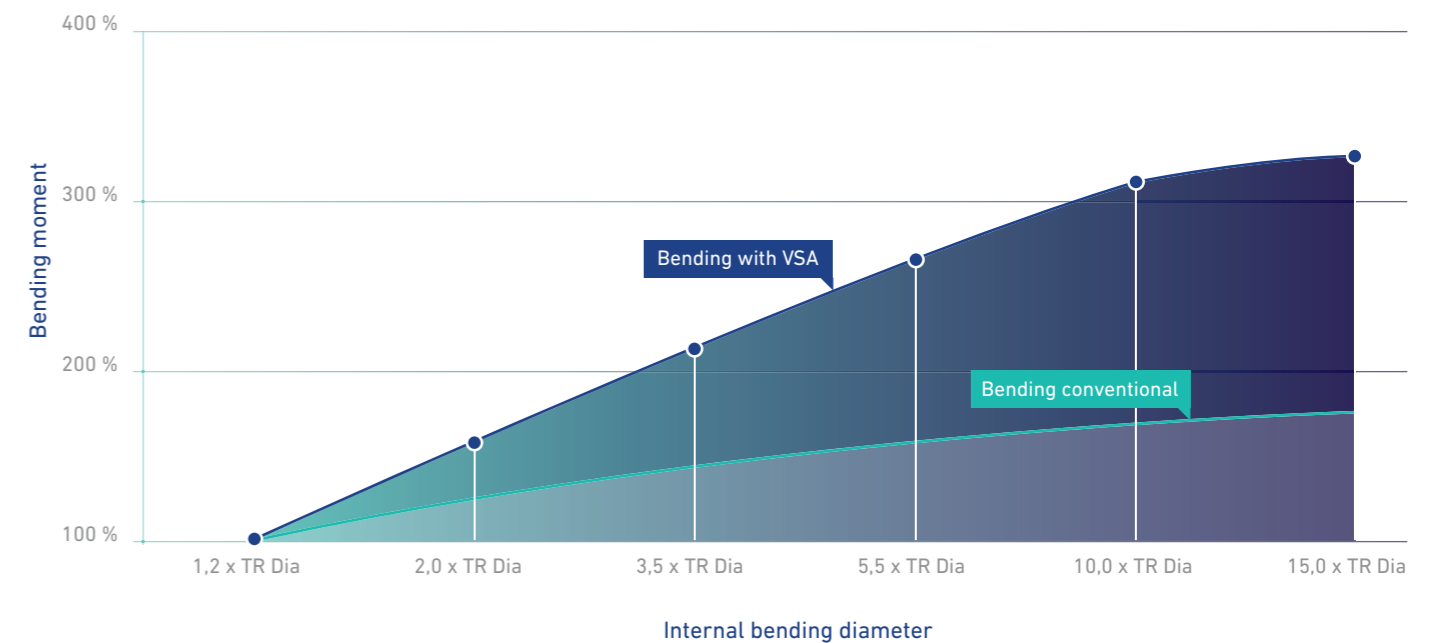
MAXIMIZE YOUR BENDING RANGE

VSA TECHNOLOGY | ALLOWS BENDING OF THICKER PLATES AND SMALLER DIAMETERS

The new and patent pending VSA® - technology allows the operator to bend either **very heavy wall thicknesses** or alternatively **very small diameters**. This can be realized by a unique adjustment of the bending geometry. The EVO is worldwide the only 4-roll plate bender with this unique feature.

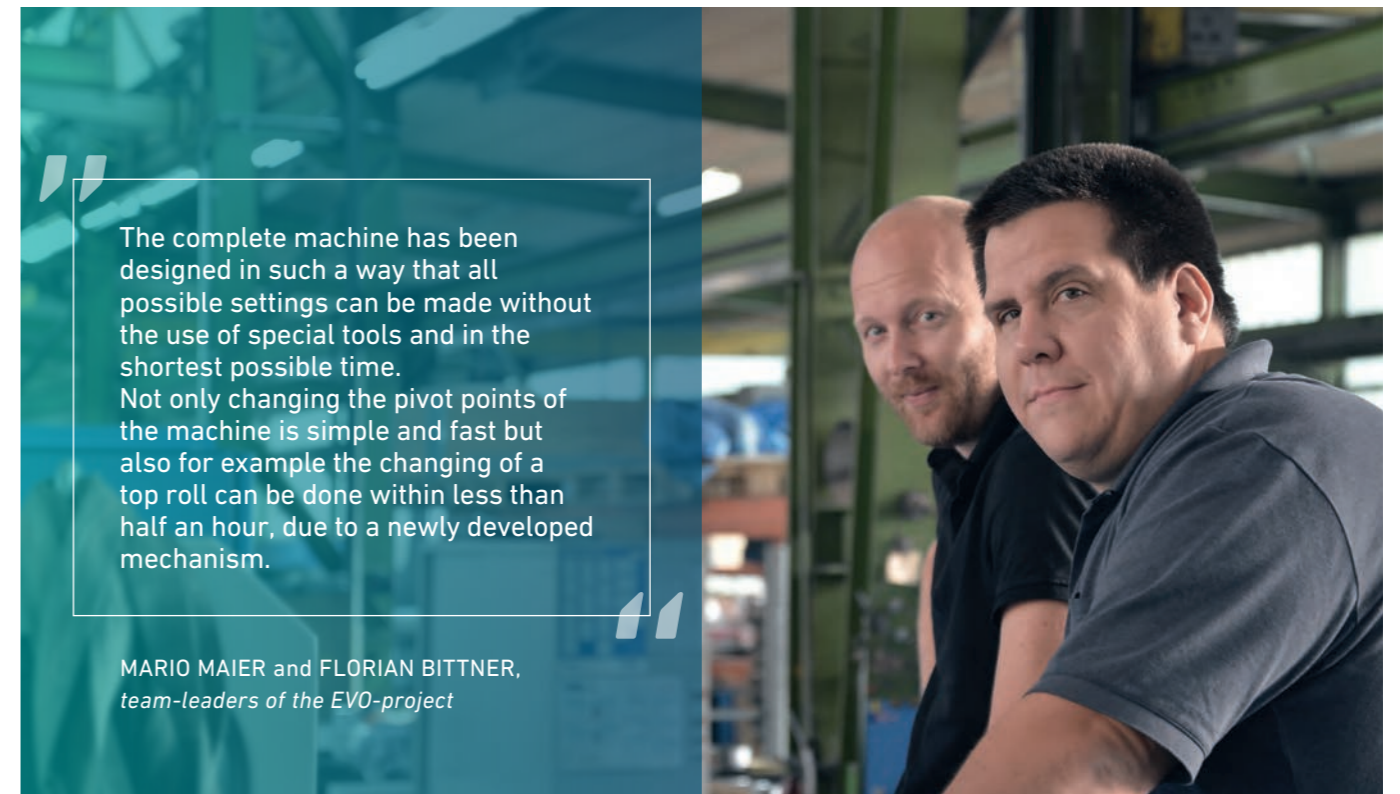
For our clients it means that they are now in a position to get a machine with up to **85% more bending moment** compared to conventional bending machines. Additionally they get the possibility to use super small interchangeable top rolls for bending tight diameters.

HAEUSLER VSA – SHIFTING THE LIMITS – UP TO 85% MORE ROUNDING POWER



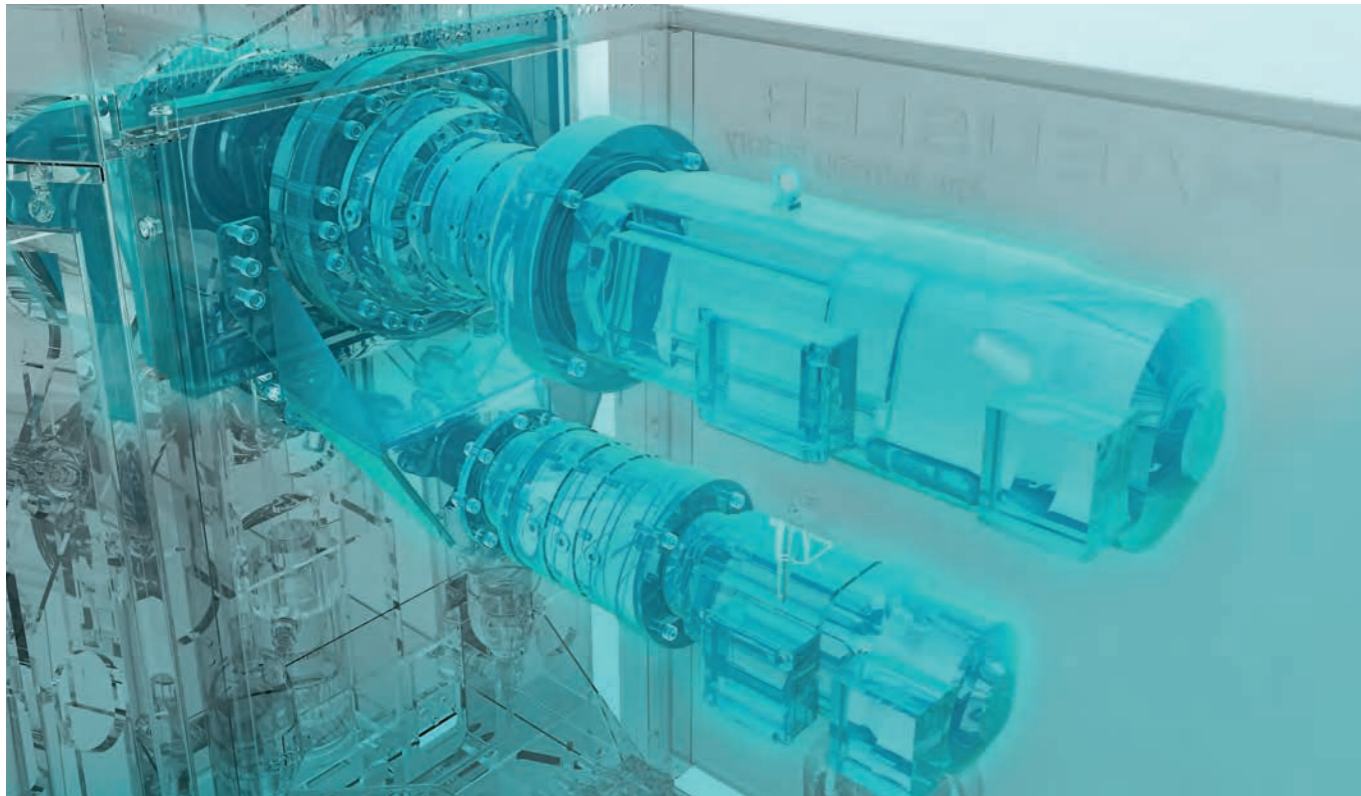
By using two instead of only one pivot point for each side roll swing arm fixation, the machine can individually be adjusted either to create a wide bending geometry for heavy wall thicknesses or a tight geometry if small diameters shall be bent.

The above shown graphic displays the increase in bending moment that can be achieved by this new technology compared to a conventional 4-Roll Plate Bending Machine.

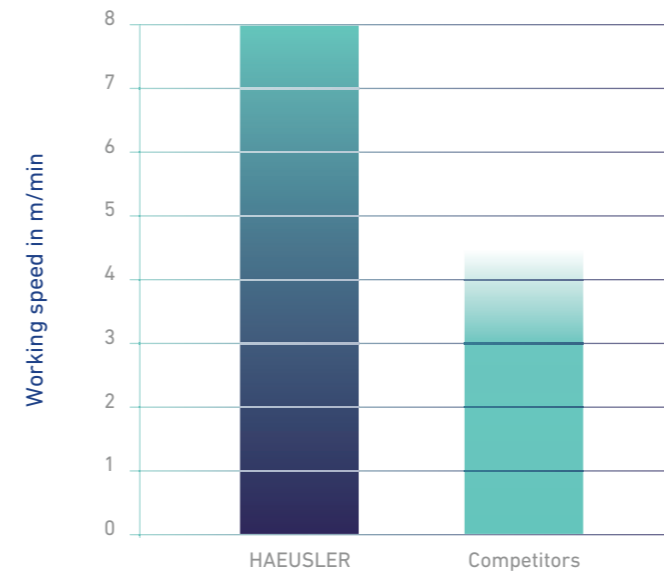


The complete machine has been designed in such a way that all possible settings can be made without the use of special tools and in the shortest possible time. Not only changing the pivot points of the machine is simple and fast but also for example the changing of a top roll can be done within less than half an hour, due to a newly developed mechanism.

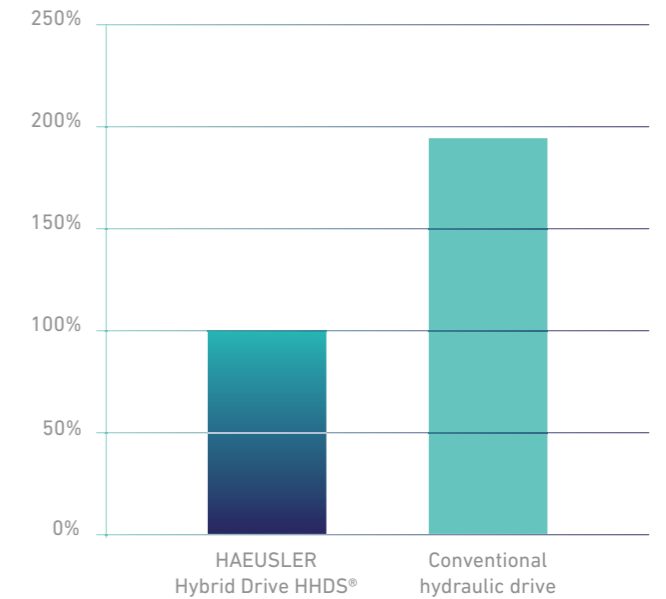
MARIO MAIER and FLORIAN BITTNER,
team-leaders of the EVO-project



WORKING SPEED IN COMPARISON



ENERGY COSTS IN COMPARISON



EVO IS COST REDUCTION

MINIMIZE YOUR TOTAL COST OF OWNERSHIP

HHDS – HAEUSLER HYBRID DRIVE SYSTEM |

HIGHEST EFFICIENCY COMBINED WITH SUPERIOR PRODUCTIVITY

The HAEUSLER Hybrid Drive System HHDS® provides an unmatched efficiency due to the consequent usage of electrical motors in combination with planetary gearboxes. In practice this means savings of up to **50% of the running**

costs. Additionally the Hybrid Drive System allows a step-less adjustable rotation speed from 0 - 8 m/min. This is, compared to other machines that are available on the market, an **increase of 60%** and the basis for a high productivity.

The two graphs shown above illustrate the two major advantages of HAEUSLER's HYBRID-DRIVE-SYSTEM. 60% faster speed, which is particularly interesting for bending and calibrating large

diameter shells, as well as the huge savings potential in maintenance costs that can be achieved by using the HAEUSLER HYBRID DRIVE SYSTEM.



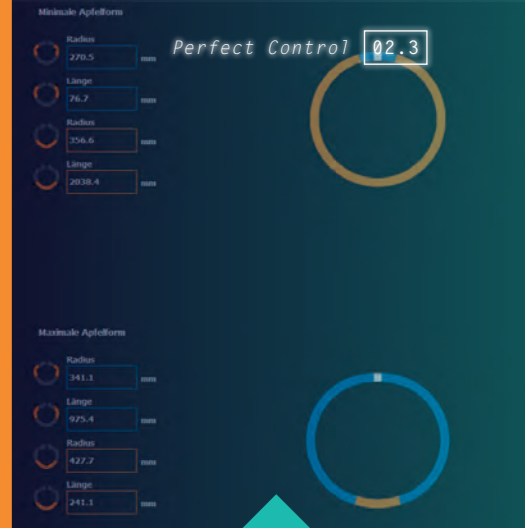
By decoupling the rotary drive from the roller adjustment, we have succeeded in tremendously decreasing the machine's running costs. Not only the better efficiency of the electric motors plays a decisive role, but also the significant reduction of oil circulation in our system. Long-term tests at well-known companies in Europe validate the fact that with this type of drive 50% savings in the maintenance costs can be realized.

BENJAMIN SCHÄUBLE and CHRISTOPHE HELL, responsible for the Hybrid Drive System



SINGLE RADIUS MULTI PASS

automatically generates CNC programs to achieve a complete cylindrical workpiece even when multi pass bending is required



MULTI-RADII CALCULATOR

automatically generates a full CNC program to achieve the desired multi radii workpiece even for multi pass bending applications



APPLE CALCULATOR

calculates the different possibilities to achieve the usually desired "apple shape" of a cylindrical piece when pre-bending

EVO IS PERFECT CONTROL

OUTSTANDING CONTROL SYSTEM WITH ARTIFICIAL INTELLIGENCE

BENDTRONIC® | BENDING BECOMES CHILD'S PLAY

The revolutionary BENDtronic® of HAEUSLER enables everyone to control not only the movements of the machine but the bending result itself. The graphically supported software allows single-pass as well as multi-pass plate rolling and can be used for any kind

of product shape like cylinders and pipes, ovals, tanks or other more complex geometries even up to S-shaped workpieces. The BENDtronic® contains various auxiliary tools which optimally support the operator.

CAPACITY CALCULATOR

shows if the desired workpiece can be bent. Additionally, the tool shows the load applied on the machine as well as the remaining flat ends and spring back that can be expected

BEND CALCULATOR

calculates the required positions of the rolls to achieve the desired radius

Our goal was to develop a simple and intuitive user interface leading the operator through highly complex plate bending processes. Thanks to our artificial intelligent BENDtronic system users can reliably deal with unknown materials and obtain perfect bending results.

DR. ALEXANDER ZWAHLEN,
head of BENDtronic development team



EVO IS CHOICE

THE EVO MODEL RANGE



	15 series	31 series	49 series	71 series	102 series	139 series	196 series	283 series	385 series
plate width 2100 mm	EVO 21015	EVO 21031	EVO 21049	EVO 21071	EVO 21102				
rounding capacity	15 mm	19 mm	23 mm	29 mm	40 mm				
pre-bending capacity	10 mm	14 mm	18 mm	22 mm	30 mm				
plate width 2600 mm	EVO 26015	EVO 26031	EVO 26049	EVO 26071	EVO 26102	EVO 26139	EVO 26196	EVO 26283	EVO 26385
rounding capacity	12 mm	16 mm	20 mm	26 mm	35 mm	42 mm	50 mm	70 mm	87 mm
pre-bending capacity	9 mm	12 mm	16 mm	20 mm	28 mm	35 mm	40 mm	54 mm	67 mm
plate width 3100 mm	EVO 31015	EVO 31031	EVO 31049	EVO 31071	EVO 31102	EVO 31139	EVO 31196	EVO 31283	EVO 31385
rounding capacity	10 mm	14 mm	18 mm	23 mm	32 mm	38 mm	44 mm	59 mm	70 mm
pre-bending capacity	8 mm	11 mm	15 mm	18 mm	26 mm	31 mm	36 mm	50 mm	60 mm
plate width 4100 mm						EVO 41139	EVO 41196	EVO 41283	EVO 41385
rounding capacity						30 mm	40 mm	52 mm	65 mm
pre-bending capacity						25 mm	33 mm	44 mm	55 mm



STANDARD FEATURES

- Variable planetary guiding system VSA®
- HAEUSLER Hybrid Drive System HHDS®
- Moveable 21.5" touch control panel including BENDtronic® control system
- Automatic pressure compensation between top and bottom roll
- Stepless adjustable rotation speed between 0-8 m/min
- Installed remote service for online diagnostics
- Continuous pressure adjustment of bottom roll
- Electro-mechanic holding system for rotation of top roll
- Automatic identification of interchangeable top rolls
- Standard cooling system for ambient temperatures up to 35°C
- Automatic axes optimization
- Ultra-compact design to reduce or even avoid foundation costs
- Safety snap cord



OPTIONAL FEATURES

- Cone bending device for bending of conical shaped parts
- Advanced cooling system for ambient temperatures up to 45°C
- Upper supporting device to support large diameter shells
- Lateral side supporting device to support large diameters shells
- Gas accumulator for calibration of already welded cylinders
- Machine prepared for usage of interchangeable top rolls
- Two roll drive
- Interchangeable top rolls with different diameters to bend small diameter shells
- Hardened rolls, if carbon and stainless material shall be bent
- Infeed roller table for easy infeed of the plates into the machine
- Centering device for infeed roller table, to automatically adjust the plates before bending
- Predictive maintenance plus package to reduce running costs and avoid downtimes



HAEUSLER SERVICE

The highly professional HAEUSLER TECH service team takes immediate care of your needs; installation, commissioning, trainings and predictive maintenance - worldwide

HAEUSLER KNOW-HOW

More than 80 years of technological experience in heavy plate rolling industry



ASK OUR EXPERTS: +41 61 755 22 22



HAEUSLER QUALITY

100% made in Germany and Switzerland, quality management ISO 9001



HAEUSLER PRODUCTS IN USE WORLDWIDE

NORTH AMERICA

- General Electric, US
 - Trinity Industries, US
 - McDermott, US
 - Berg Steel Pipe, US
 - Caterpillar, US
- ask for more...*

WESTERN EUROPE

- Daimler, DE
 - EADS, DE
 - Liebherr, DE
 - Dillinger Hütte GTS, DE
 - Viessmann Werke, DE
- ask for more...*

EASTERN EUROPE / CIS

- TMK (Volzhsky Pipe Plant), RU
 - Uralmash, RU
 - KAMAZ, RU
 - Energomash, RU
- ask for more...*

FAR EAST

- Hokkai Steel Works, JP
 - Hyundai Heavy Industries, KR
 - Seah, KR
 - Samsung, KR
- ask for more...*



SOUTH AMERICA

- IMPSA, AR
 - TenarisSiat, AR
 - Voith Paper, BR
 - Atlas Schindler, BR
 - Alstom, BR
- ask for more...*

AFRICA

- Steinmüller, ZA
 - Petrojet, EG
 - Helwan Engineering Industries, EG
 - Westcom Technologies & Energy, NG
- ask for more...*

MIDDLE EAST

- Ahvaz Pipe Mills, IR
 - Safa Rolling And Pipe Mills, IR
 - McDermott Middle East, AE
 - NPCC – National Petroleum Construction Com, AE
- ask for more...*

AUSTRALIA/SEA

- Godrei & Boyce, IN
 - Mazagon Dock, IN
 - Canadoil Group, TH
 - Vietsovpetro, VN
 - Rolco, AU
- ask for more...*

EVO

THE BENDING EVOLUTION...



GET LAUNCHED!

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