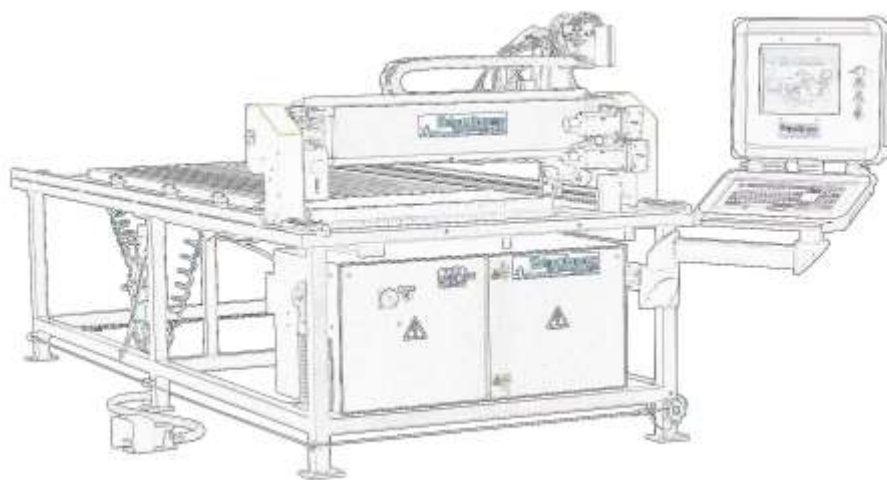


Universal CUTTING Machine

EFM-L 26.1 / EFM-L 26.2



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Universal cutting machine Type EFM-L

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The universal cutting machine EFM-L is a worldwide unique machine and is used for cutting segments for the (sheet) sheathing of insulation and rationally drilling holes.

The machine works according to the principle of a cutting plotter, by means of a portal and electric sheet shears. The integrated hole-drilling unit makes precise holes for the screw or rivet connection.

A control program, specially developed for the requirements in the insulation industry, includes the calculation of a variety of molded parts from the insulation industry, including series programs for insulation caps and pipe isometry in 3D.

Technical Data	EFM-L 26.1	EFM-L 26.2
■ Sheet length up to	2500 mm	2500 mm
■ Sheet width up to	1000 mm	1250 mm
■ Max. feed (depending on cutting shape and material)10 m/Min		10 m/Min
■ Sheet thickness (Aluminium)	1,5 mm	1,5 mm
■ Sheet thickness (galvanized steel) < 400 N/mm ²	1,2 mm	1,2 mm
■ Sheet thickness (VA) < 600 N/mm ² < 600 N/mm ²	0,8 mm	0,8 mm
■ Net weight approx.	670 kg	720 kg
■ Operating pressure	8 bar	8 bar
■ Power supply: 3x 400 V, 50 Hz, 16 A	X	X
■ Required space without the console (LxB)	3400 x 1550	3400 x 1800



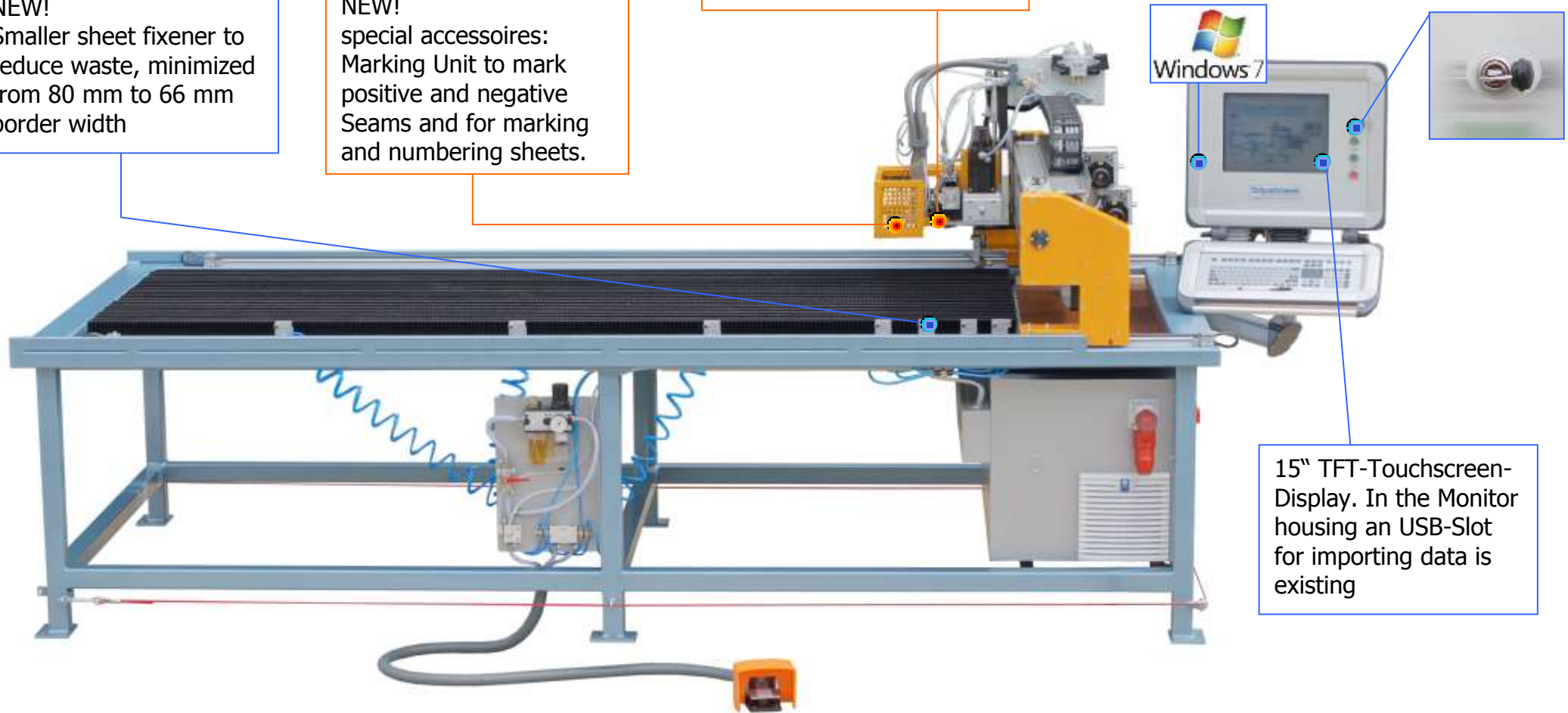


NEW!
Smaller sheet fixener to reduce waste, minimized from 80 mm to 66 mm border width



NEW!
special accessoires:
Marking Unit to mark positive and negative Seams and for marking and numbering sheets.

Approved special accessories:
Lubrication unit.
Drops some oil onto the drill that helps to prolong its term and improve also the quality of the hole.
Especially by working with stainless steel we recommend to use this lubrication unit.



15" TFT-Touchscreen-Display. In the Monitor housing an USB-Slot for importing data is existing



Selection of available programs

■ Standard accessories ■ Special accessories

100	101	102	103	104	105	106	107	108	601
141	142	143	144	341	381	382	221	801	361
181	182	183	184	185	186	188	189	192	193
194	195	251	252	253	254	271	272	273	274
301	302	303	304	305	306	307	308	311	312
313	201	202	203	204	205	211	212	213	
214	215	220	222	450	441	442	443	700	800
400	401	402	403	404	405	406	407	408	409



■ Standard accessories ■ Special accessories

No.	Description	
100	Multiple elbows	■
101	Elbow, free seam position	■
102	Reserve bend	■
103	Bend with welded segments	■
104	Level, turned axis	■
105	Bank of elbows, next to each other	■
106	Bank of elbows, stacked	■
107	Lyra elbow	■
108	Cone elbow	■
601	Pipe isometry	■
141	Adapter piece, round - round	■
142	Adapter piece, round – angular	■
143	Adapter piece, round oval	■
144	Adapter piece, round – angular 90°	■
341	Cone, multi-section	■
381	Sphere, small, with equal segments	■
382	Ball great with misaligned segments	■
221	Shock-cap-ring	■
801	Tank-hull	■
361	Pipe with ½ angled cuts	■
181	Connecting piece Cylinder < - Cylinder	■
182	Connecting piece Cylinder > - Cylinder	■
183	Connecting piece Cylinder – Cone	■
184	Connecting piece Cone – Cone	■
185	Connecting piece Cone – Cylinder	■
186	Connecting piece Cylinder – Back of bend	■
188	Connecting piece Cylinder - Cylinder with a wedge	■
189	Connecting piece Cylinder – Cylinder with two wedges	■
192	Shoe connecting piece	■
193	T-connector as adapter round-square	■
194	Volumetrical connecting piece	■
195	Connecting piece on tank	■
251	Y fitting with cylindrical branches	■
252	Y fitting with cone branches	■
253	Y fitting with right-angled branches	■
254	Y fitting with transfer leg	■
271	Zeppelin head, clapper end/basket end/free form	■
272	Cone head	■
273	Domed head	■
274	Dished head	■
301	Cylinder fitting on Zeppelin head	■
302	Cylinder fitting on cone head	■
303	Cylinder fitting on sphere	■
304	Cylinder fitting on ball	■
305	Cone fitting on Zeppelin head	■

No.	Description	
306	Cone fitting on cone head	■
307	Cone fitting on sphere	■
308	Cone fitting on ball	■
311	Cone, multi-section	■
312	Rectangular fitting on cone head	■
313	Rectangular fitting on sphere	■

Programs especially for the rational series cutting of caps (boxes)

201	Flange cap/end plate, horizontal	■
202	Valve cap semicircular, horizontal	■
203	Valve cap, angle, horizontal	■
204	Rectangular cap semicircular, horizontal	■
205	Rectangular cap angle, horizontal	■
211	Flange cap, vertical	■
212	Valve cap, semicircular, vertical	■
213	Valve cap, angle, vertical	■
214	Rectangular cap, semicircular, vertical	■
215	Rectangular cap, angle, vertical	■
220	Series caps (covers, cases, tapes, end plates)	■
222	Heat exchanger	■

Other special accessories

441	Pipe smoothing device	■
442	Bend smoothing device	■
443	Fitting smoothing device	■
450	Connecting piece – bend	■
700	DXF Import	■
800	Strip cutting device	■

Programs especially for the insulation of air ventilation systems

400	Ventilation isometry	■
401	Connecting piece	■
402	Ventilation bend	■
403	Ventilation angle pipe	■
404	Ventilation transfer piece	■
405	Ventilation pipe transfer piece	■
406	Ventilation level	■
407	Ventilation T-piece	■
408	Ventilation Y-piece	■
409	ventilation channel	■



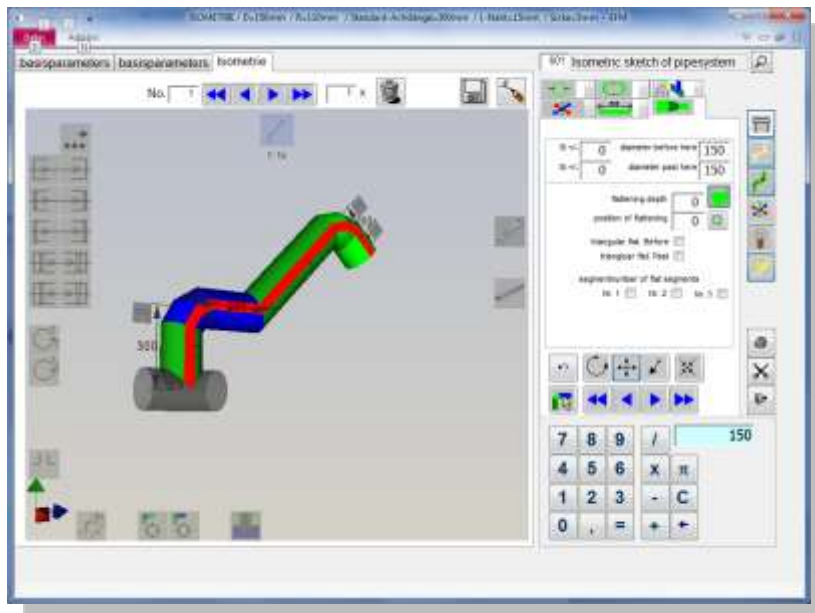
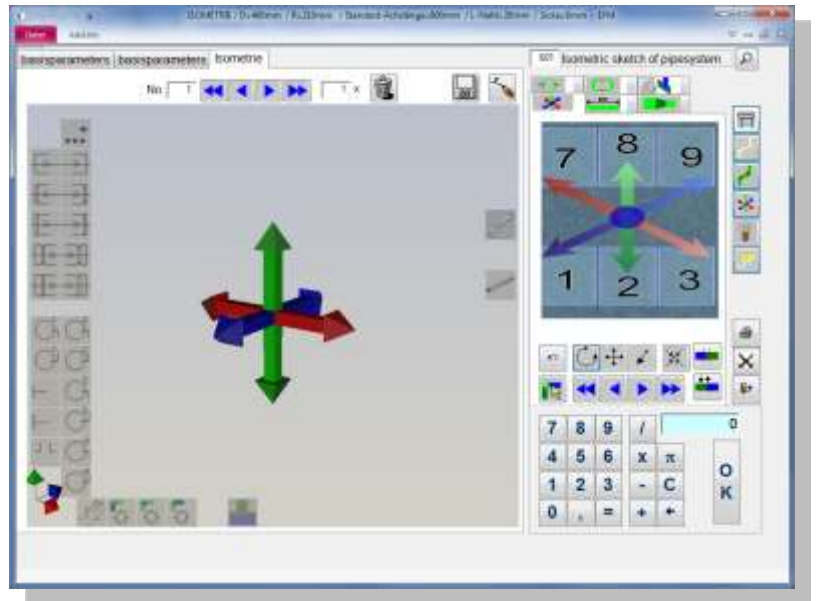
Software

The user program is tuned to the special needs of the insulator, and has 3D graphics, which help with input and to avoid errors.

For example, the program *Pipe Isometry* allows pipelines to be entered with graphical support.

By touching the coloured arrows on the touchscreen display, you can create bend segments and can then change all parameters.

Every changed parameter is displayed directly; this way, one can see the finished product before installation and can avoid input errors.



Even complicated connections can be completed quickly and clearly. Besides the pipe geometry, the graphics also show the position of the seams and axis lengths.

One can combine pipe segments, pipe bends, (inclined) connecting pieces, cones, flattenings (with/without triangle), and much more.

This way, up to 40 isometries can be put together at once, which the program optimizes to minimize leftover sheet metal.

Furthermore, there is also the possibility to connect a label printer for optimizing your production.

There is also the option of printing out a copy of what's on the screen with a colour printer for documentation purposes.





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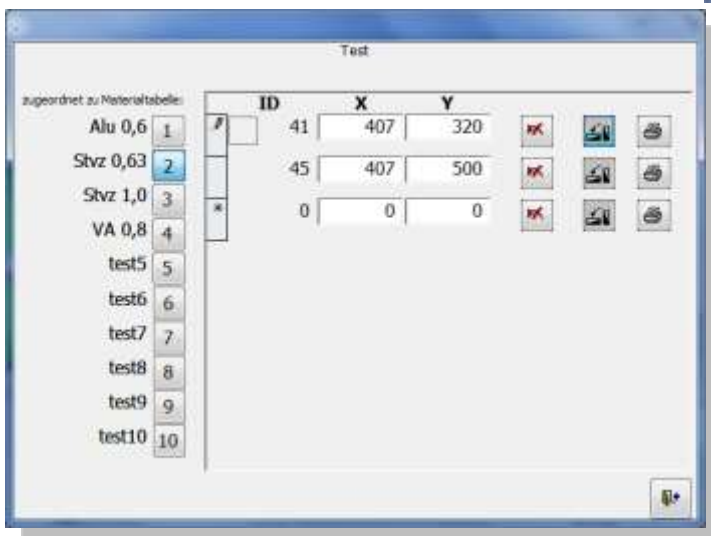
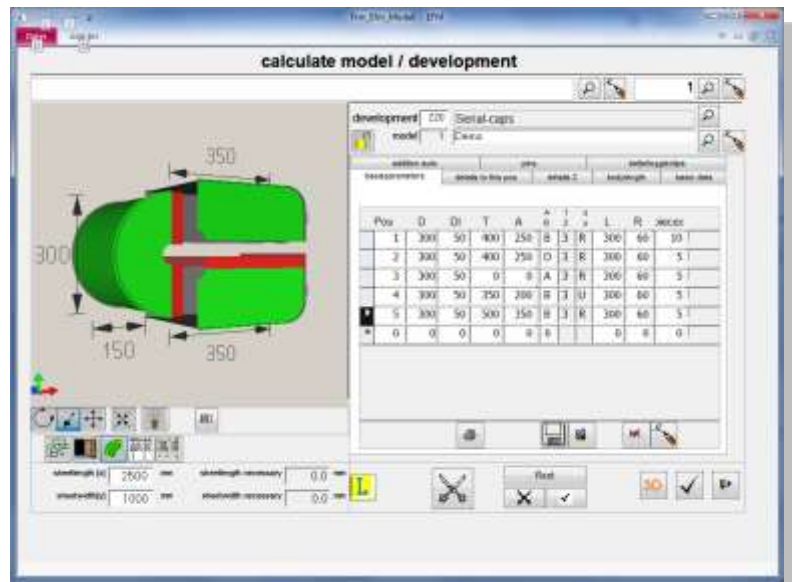
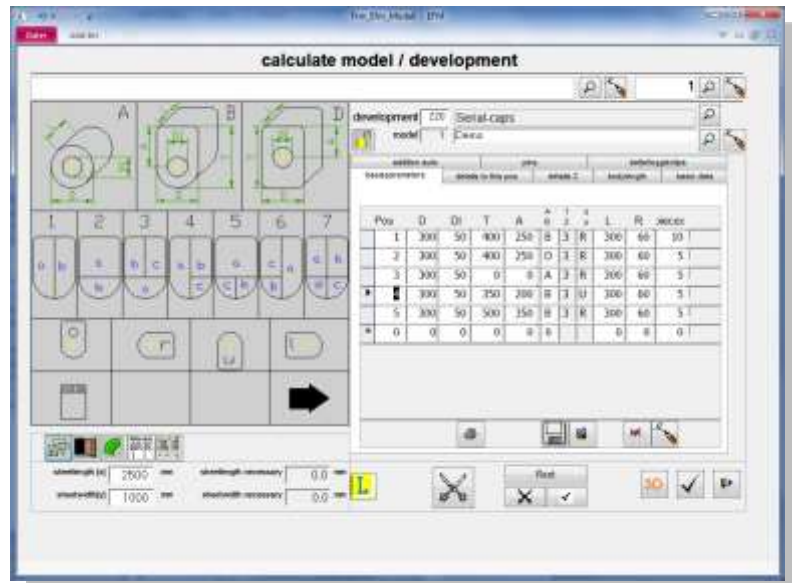
The program *Series Caps*, for rationally manufacturing diverse caps, can be used to enter and cut single or entire series of different caps, quickly and easily.

The program controls all common shapes (flange, fitting and suitcase form) and divisions (even asymmetrical).

Working with basic data and an ingenious, automatic add-on program makes input easier. This basic data is set in your system during training and can be easily changed.

This way, a standard cap can be input within a few seconds, since only the shape, division, and diameter have to be entered in the table.

All details regarding a single cap can be easily adapted, e.g. caps with indented lock seam, roof-top shape, flattenings and many more. And they can be looked at on the 3D preview.



If you should have relatively large metal sheets left over from previous cuts, enter these in the leftover sheet table. The program looks for the optimal way to cut the sheet, and uses all leftover sheets, if possible, before you place a fresh sheet in the system.





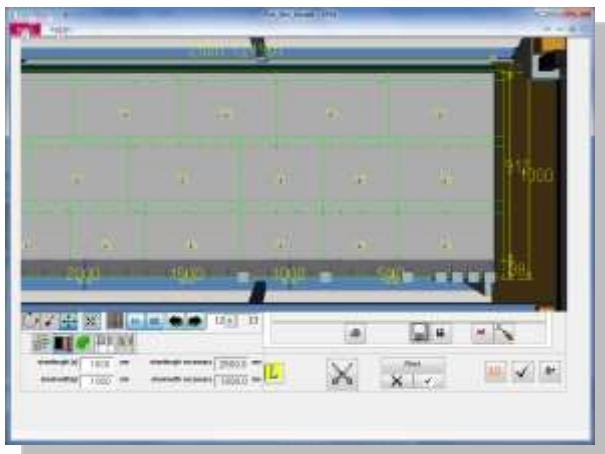
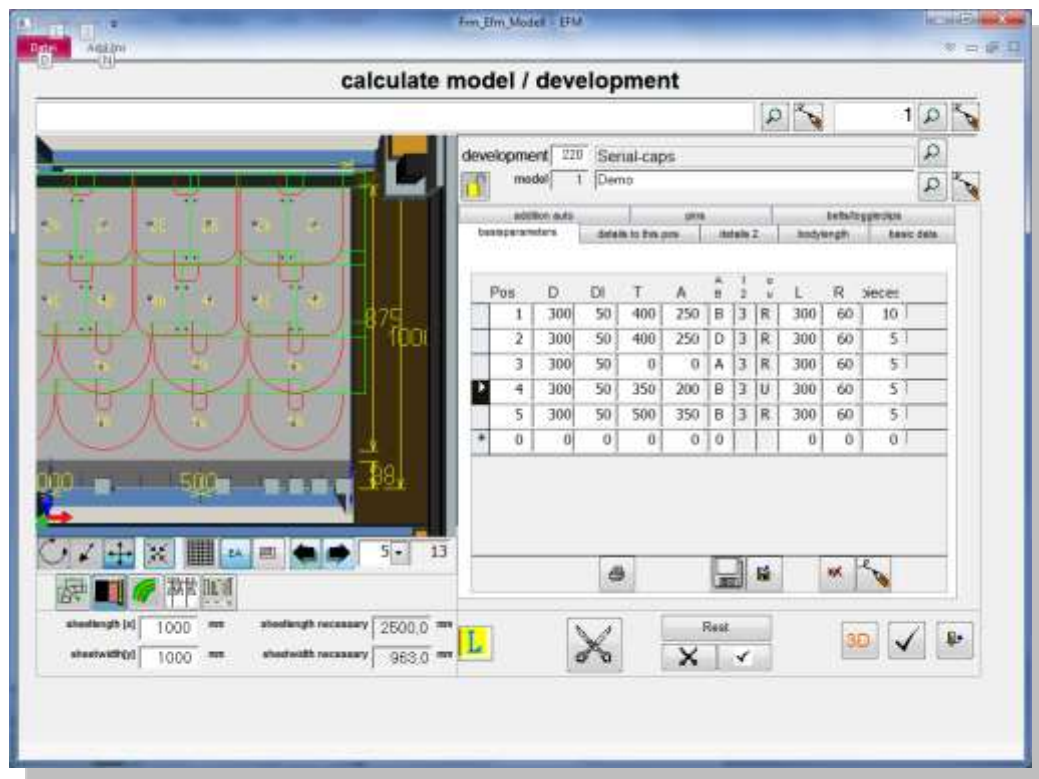
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As a special feature, the covers and the sheathing are separately cut, in order to be able to work with different types of sheets/thicknesses.

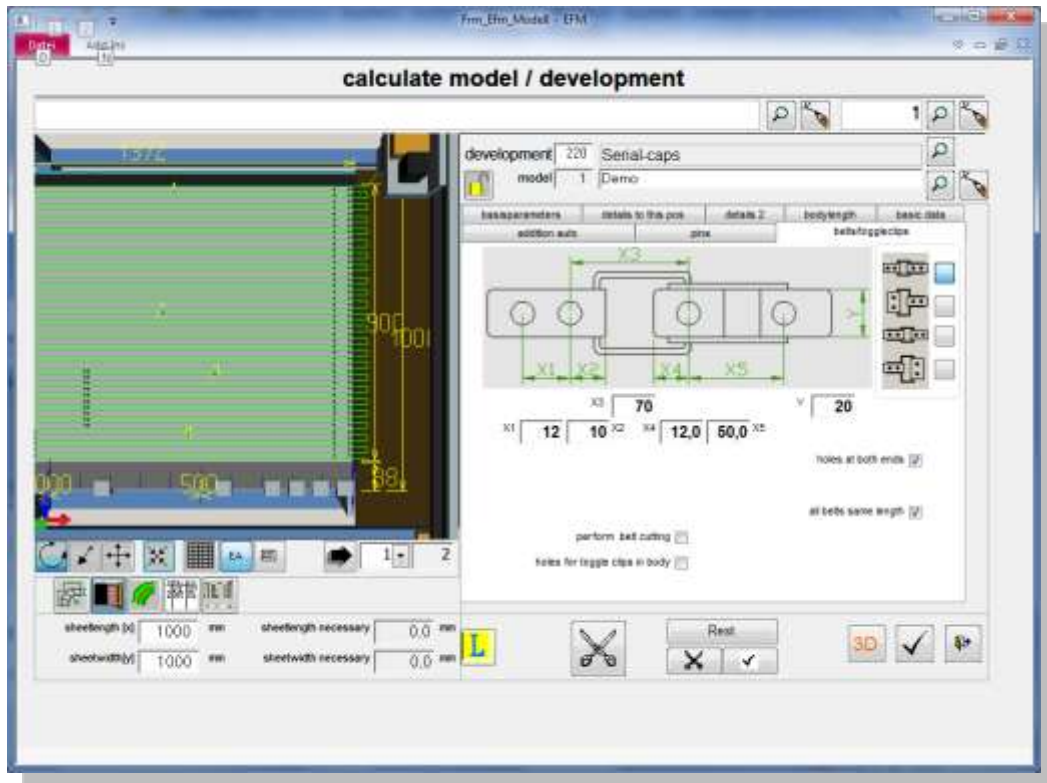
Further interesting features of this program include: (can always be activated/deactivated at will!)

- Platal function (for coated sheets)
- Holes in centre of disc
- Holes on quarter parts
- Holes at the overlap for foam caps
- Holes for adhesion in the sheathing



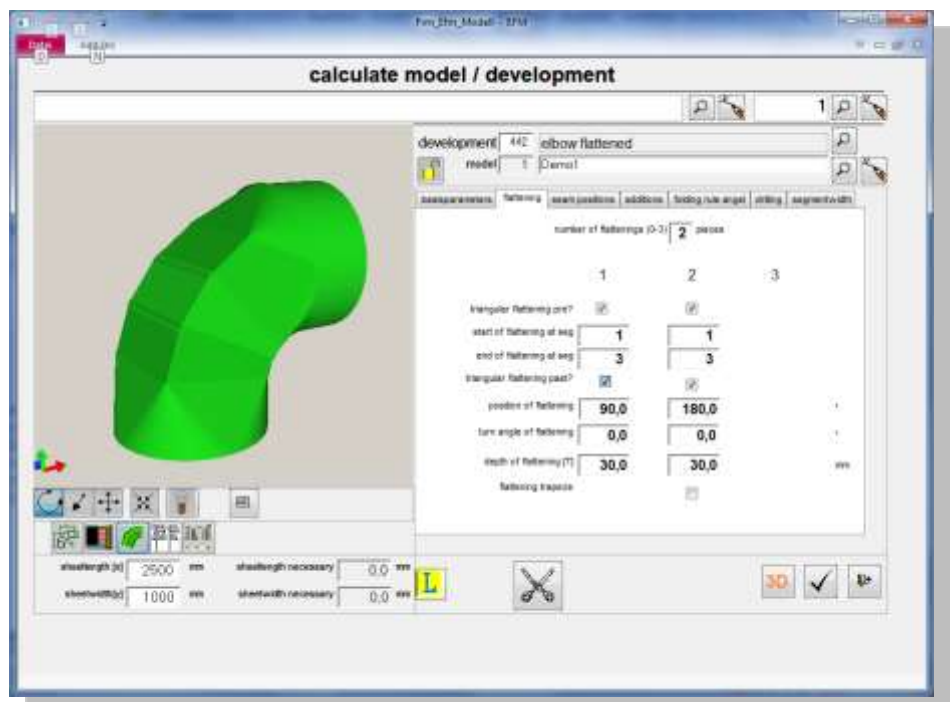
- Marking the corner radii for fitting caps or case caps
- Additional edging on the sheathing for reinforcement in the case of very long caps
- Drilling holes and cutting of cap bands for diverse types of locks (!)
- Cutting of 3 different Types of end discs (for pipes)
- Possibility to integrate in existing business Software for automatic data transfer
- Roof-top shape and indented lock seam for external areas
- Control of a label printer
- Printout of production table for manufacturing





Besides the two introduced programs, the program package includes many other programs for rationally producing molded articles, such as bends, bundle conductors, contactors, funnels, tank heads, tank feet, flattenings, etc. When doing so, you always have an overview with the 3D preview.

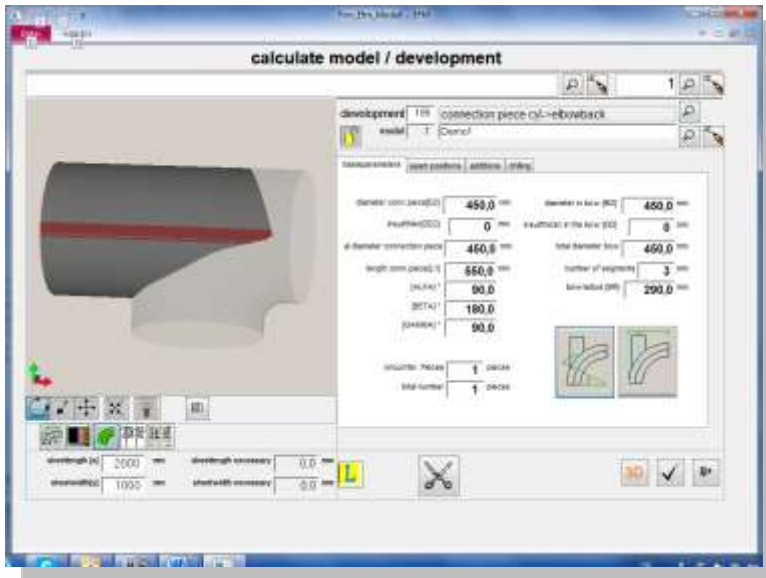
Example:
Bend segment, flattened 2x.
1st flattening on the back,
trapezoidal, 2nd flattening on
the side with transitions as
triangle. The flattenings
intersect each other!





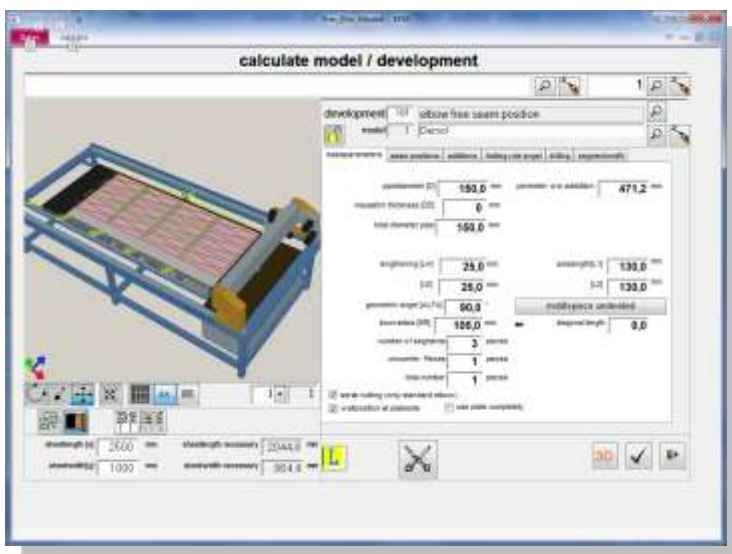
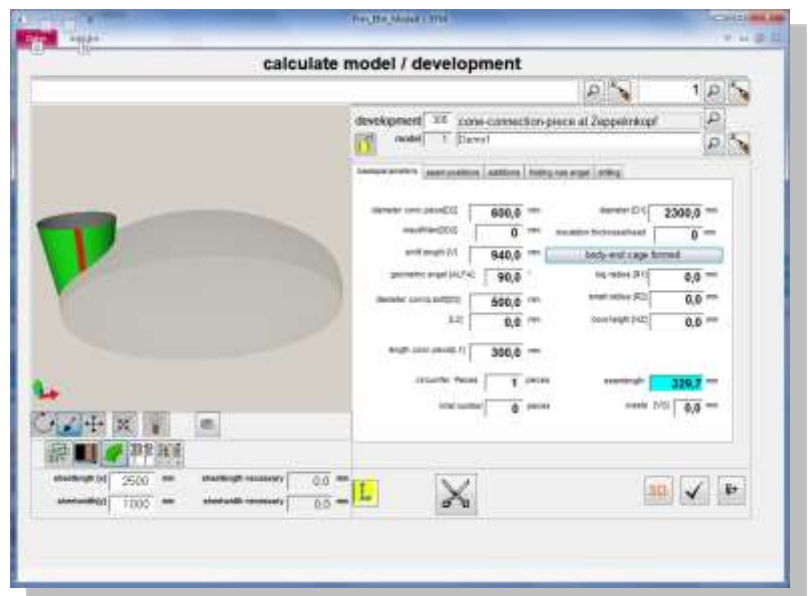
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Example:
Contactors (grey) on bend segment.
The contactor can be turned in every desired position by means of 3 angles (even laterally and in the flute)

Example:
Contactors (green) on zeppelin head (tank foot). The contactor can also be designed in conical form and can touch the tank head at any place (transition between corner radius and tank radius is taken into consideration)



Example:
Bend segment in multiple piece
number cut in series

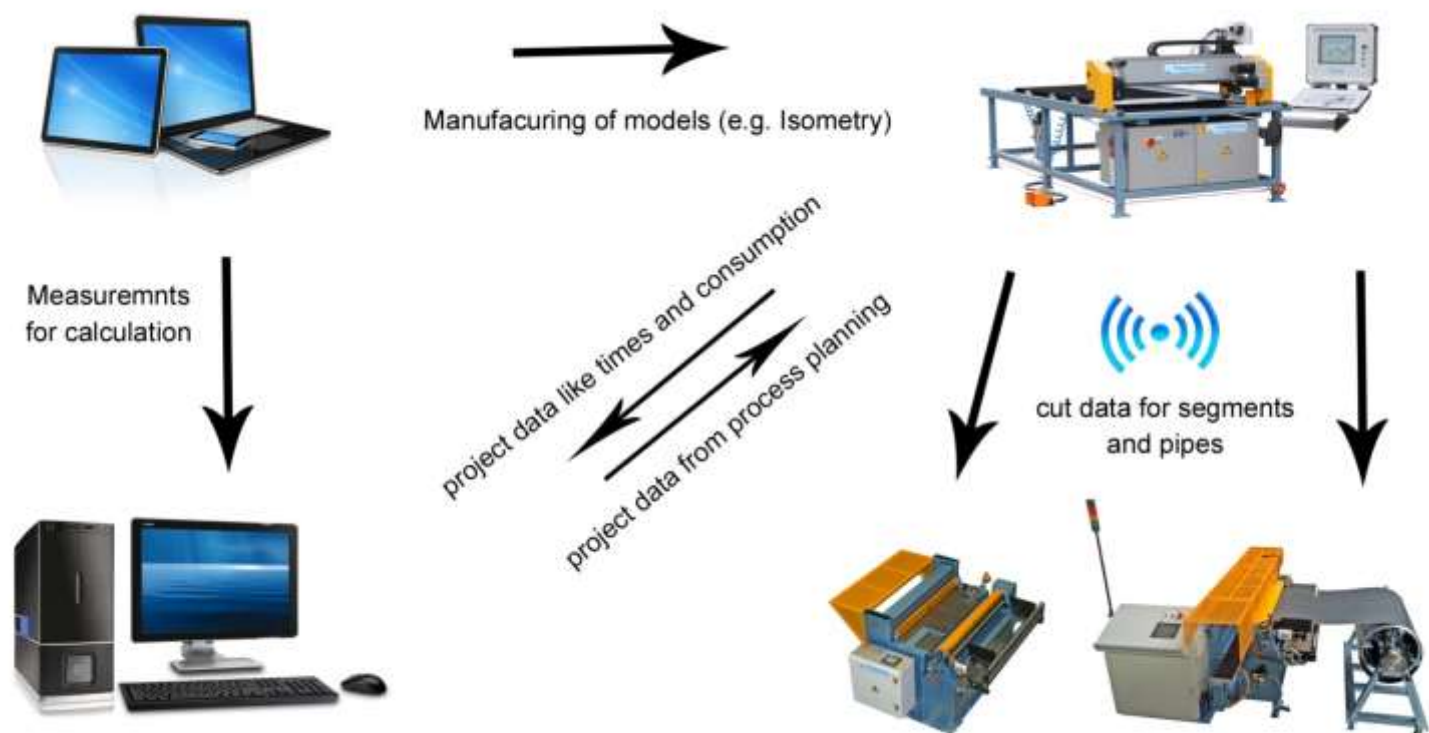




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Machine concept:



A lot of satisfied customers belief in the quality of the machine EFM-L. Here you find a short extract from our reference list:





10 good reasons to invest in an EFM-L from Schwartzmanns Maschinenbau:

1. The EFM-L is an fully sophisticated Machine with an extensive, specialised Insulating-software.
→ *Without teething troubles, all-time best productivity!*
2. The Schwartzmanns Machine concept is based on a strictly breakup between
 - a. Cut-to-length,
 - b. Cutting of all different form pieces and the
 - c. Production of pipes (Rounding + Seaming).→ *The outcome of this is, that machine capacity will not be blocked needles. Every machine component is maximal productive!*
3. Awarded Products
→ *Multiple „ISO-AWARDS“ e.g. 2004 and 2010 with the first Price.*
4. Internet connection and networking between machines
→ *Double data entry on every single machine is not needed. The control units of the machines are connected via W-LAN. Super fast support in case of questions about complex parts or data entry of special pieces.*
5. Unique Marking System with multiple possibilities!
→ *Marking of rest-sheets and storage into an database for later usage to reduce waste*
→ *Numbering of pieces according to the measurement for a fast identification of parts.*
→ *Marking of machining data for following working steps (Orientation of seams, Requirements for rounding)*
→ *Marking of edging lines (e.g. adapter piece round - angular)*
6. Flexibility with additional software licences
→ *Mobile data entry of measurements on site*
 - *Increasing quality by comparism of entered data and reality*
 - *Increasing working speed by transferring data from site to the workshop*→ *Data entry or post editing of measurement data in the work preparation department*
 - *Priorising of projects*
 - *Data entry in a quiet atmosphere, to emphasize quality*
7. Automated implementation of demands resulting from norms and specifications
→ *Circumferential and diameter regulated overlapping were calculated automatically. The machine user doesn't need to think about this and can concentrate on his work. Example: DIN EN 4140 Overlapping also asymmetric possible.*





8. Less maintenance costs compared to other existing solutions in the market
 - ➔ *Machine maintenance and replacement of wearing material can mostly be done by the customer himself. Wearing material can priceless be bought directly by Schwartmanns Maschinenbau*
9. Best cost- / benefit - proportion
 - ➔ *Grade of automation in comparism to the investment is enormously high. Productivity will be shown before the decision for buying the machine is made*
10. The complete manufacturing process is effective and designed for productivity!
 - ➔ *Cutted pieces can directly be end mounted. No breaking out of parts from rest grid. Maximum material usage based on optimized nesting. Reducing of waste based on rest sheet recovery*

Additional reasons for purchasing:

- Schwartmanns with more than 50 years of company history is your reliable partner – today and also in the future!
- EFM-L Machines are located in the whole world. Main markets are Germany, BE-NE-LUX, Russia. But also in Asia, South Africa, South America and Eastern Europe People work satisfied with EFM-L machines.
- Assistance in financial questions through Schwartmanns Maschinenbau and partner companies.
- Workshop-planning and optimization of routings. Holistic assistance by workshop preparation.

