

| ENG |

BENDING 4-RUNNER



BLM GROUP

4-RUNNER

Four operations, one machine

The unquestionable advantage of this combined, multipurpose tube processing system is its modularity. It can be variously configured as a dedicated version for a specific job or complete process including: de-coiling, straightening, end-forming, bending, and cutting-off and unloading the finished component. Benefits include:

- maximum flexibility in terms of functionality and manufacturing capability
- maximum efficiency and lower investment costs because of process integration and just-in-time operational capability.



Feeding from motorised de-coiler.
The tube is straightened by a set of driven rollers.

4-RUNNER

Up to 22 mm

- tube processing system
- All electric
- feeding from coil
- de-coiling/straightening, end-forming, bending, cutting



Different cutting devices can be used depending upon the component: internal orbital swarfless cutter, external orbital swarfless cutter, sawblade.

The CNC controlled, integrated unloading device automatically unloads the finished components in a neat and controlled manner.

The multi-station end-forming unit can be configured with four or six ram forming stations or four ram forming stations and one rotary station.

With the **4-RUNNER** in the same cycle and to the same tube you can bend both right hand and left hand, in fixed and variable radius bends, in single and 3D planes angle cycle. The possibility of combining different bending technologies such as compression bending and draw bending with different bending radii in the same part offers maximum flexibility, productivity and accuracy.

APPLICATION SECTORS

This machine is best suited for bending small/medium diameter tubes with complex shapes commonly used in sectors like automotive, air conditioning, heating, cooling, domestic appliance etc.



Simply by entering the bending co-ordinates for the required part, within a few minutes the bent and/or end formed component is produced.



The precise controllability of its axes movements is ensured by the inherent accuracy of the all-electric drives, providing consistently highly accurate, perfect quality bends with zero scrap.

4-RUNNER

Easy to use

One easy to use programming software VGP3D, allows you to program and simulate the bending and end forming operations. Operators can:

- a single part program is generated that incorporates the bending and end forming operations and calculates the overall cycle time for cost estimating and production planning.

With VGP3D you can also optimise all the end-forming operations in real time.



Available bending technologies

Compression bending

Draw bending

Variable radius bending

In automatic cycle right and left-hand bending

All easily combined in the same component



4-RUNNER

Technical highlight

Cutting options

The 4-RUNNER can be equipped with the most ideal cutting device to suit the customers application.

Internal swarfless orbital cutter (prior to bending)

The tube is partially cut to the developed length prior to bending and snapped apart after bending.

External swarfless orbital cutter (after bending)

This unit cuts the component to the required length after bending and end forming has been completed.

Saw blade

Where the application allows this unit provides a higher performance option.

Low running costs & maintenance: inexpensive to run and maintain as the much reduced power consumption of the all-electric technology offers massive savings, typically 80% compared to conventional hydraulic machines. The use of the latest Siemens drive technology with simplified cabling and components requires zero maintenance and increased reliability.

Environmentally friendly: extremely low noise levels, no hydraulic oils, no oils leaks, and no hydraulic filter replacement make the 4-RUNNER 'green and clean'.

Functions of self-calibration: true simultaneous axes movement, and adjustment of the clamp die, pressure die, and follower slide position, with modulation of distance setting and torque during the bending cycle.



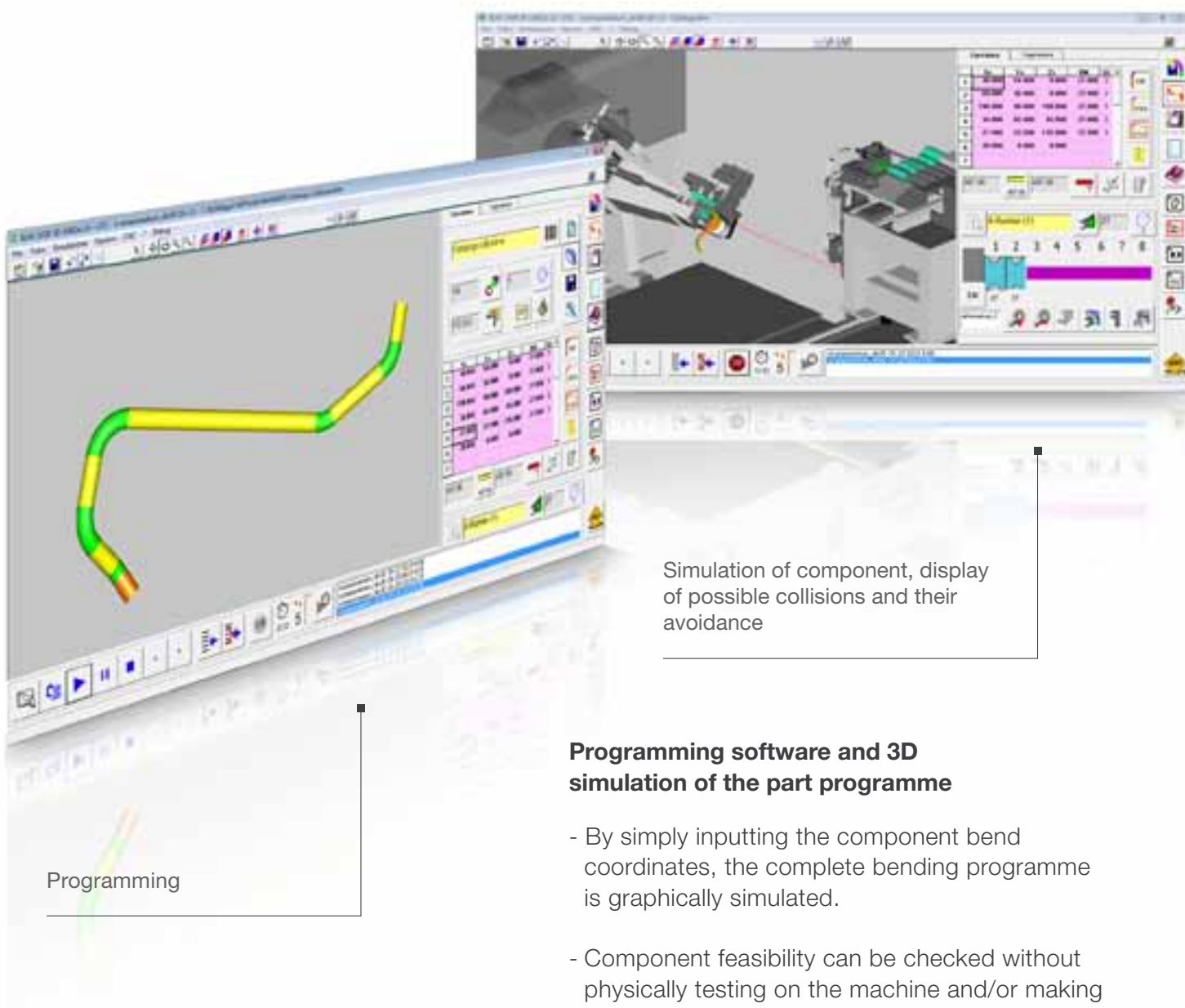
MECHANICAL TRANSMISSIONS

All of the transmissions, including the bend head, incorporate a direct gearbox drive which eliminates backlash and with the absence of a chain drive deliver the highest accuracy, repeatability and reliability.



SOFTWARE

VGP3D, the difference



Simulation of component, display of possible collisions and their avoidance

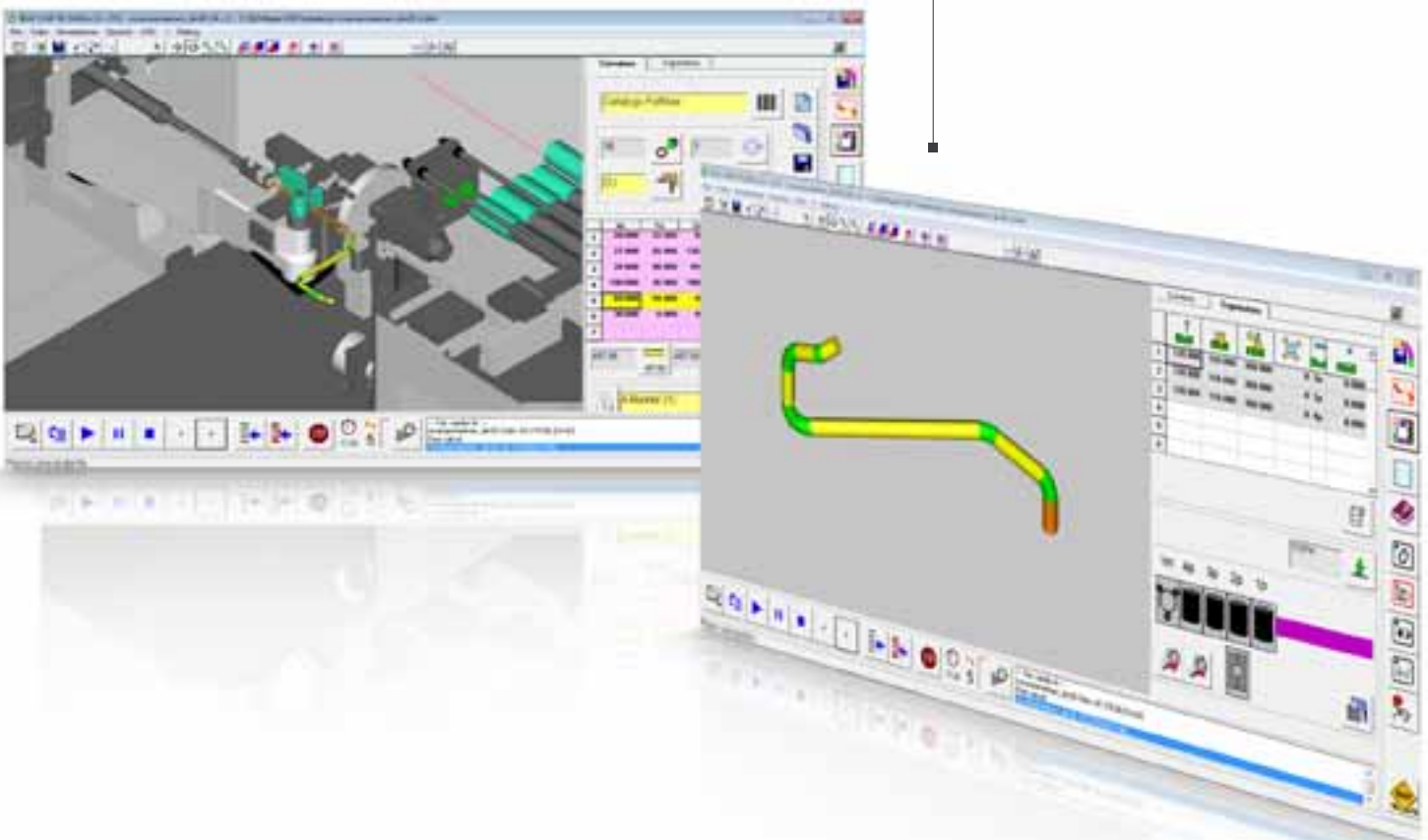
Programming

Programming software and 3D simulation of the part programme

- By simply inputting the component bend coordinates, the complete bending programme is graphically simulated.
- Component feasibility can be checked without physically testing on the machine and/or making prototype tooling.
- Real-time component simulation, production costs and component pricing can be estimated more precisely.
- The fastest working cycle is automatically

Calculation of the feasible part programmes with corresponding cycle time

End-forming programming



generated by the VGP delivering the fastest cycle time.

- Any likely collision risks are highlighted and the most efficient avoidance route selected automatically.
- Knowing an exact cycle time means responses to new customer enquiries can be made easier, quicker and more accurately.
- Programming 'Wizard' available for simple part programmes.





4-RUNNER

Technical specifications

Bending capacity for round tubes	Al: 22 x 1,2mm - Cu: 22 x 1,6 mm Fe (R= 37 Kg/mm ²): 14 x 1 mm - Inox: 12 x 1 mm
Controlled axes	nr. 7+4+2
X axis accuracy	+/- 0,05 mm
Y axis accuracy	+/- 0,05°
Z axis accuracy	+/- 0,05°
Max. bending radius (can be increased on request)	70 mm
Min. bending radius (can be decreased on request)	16 mm
Max diameter of tube	22.7 mm
Max. installed power	12 kW (16 kW with accessories)
Average power consumption	4 kW
Noise level	65 dB(A)
Machine weight without end-forming module	2.500 daN
End forming module weight	1.500 daN
Machine dimensions without end forming module	4000 x 2200 x 1900 mm
End forming module dimensions	2300 x 1400 x 1400 mm



CNC: SIEMENS SIMOTION CNC for continuous monitoring and of all the axes movements to ensure their movement as per the VGP 3D simulation. **Operator interface:** interactive graphic programming with 3D machine model. SIEMENS SIMATIC PANEL PC677C industrial PC with INTEL Core I7-610E processor, 4GB RAM, 32 GB solid-state hard disc for storing programs and tool data. Windows 7 ULTIMATE operating system. Connections: 2xEthernet, 5xUSB, 1xRS232. TOUCH SCREEN operator panel (19" TFT colour display). SIEMENS MCP483 machine panel. Standard remote assistance (Internet connection required). **Digital drives:** SIEMENS SINAMICS with DRIVE-CLiQ digital interface integrated with all system components, including motors and transducers. Brushless electric motors with position feedback using absolute encoders. **Options:** right and left-hand bending accessories, drilling attachment and hole punching marking system and support table for serpentine bent components.

TUBE BENDING

endforming
lasertube cutting system
sawing, deburring and washing
cutting & end machining
combined sheet and tube laser cutting
handling
3d measuring
manufacturing cell
non touch measuring systems
process control software



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