

Booster Retrofits for minimizing wall thinning

Pines is pleased to offer a turnkey retrofit package of our most advanced version of the “open top Booster” for Pines Model No. 2, 3, and 4 size pipe benders. (Larger machines can also be retrofitted by special request.)



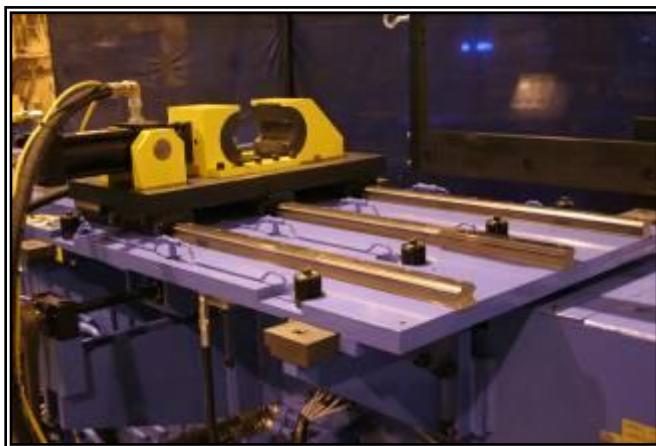
Boosting is a process technology used to prevent a decrease of a tube's wall as a consequence of the bending cycle and is a primary requirement for energy related and pressure vessel pipe bending applications. Pines developed this process originally for the US Navy and this technology can be retrofitted to your existing Pines NC machines.

Pines Technology has done extensive research into the bending process revealing the variables that cause wall thinning. Over 45 years of experience have been incorporated into the design of the Pines booster systems. Pines determined that just pushing on

the end of the pipe was insufficient to produce consistent results of less than 10% wall thinning when bending less than 2 X the diameter bends.

Tool design, boost pressure, speed and boost sequence were all critical to achieving desired results.

Booster system



The open top booster is designed to accept long and heavy pipes from a loader or overhead crane. The device provides variable boosts throughout the bending cycle of up to 25 tons. The booster is adjustable for different CLR's (Center Line Radius).

Boost Radius – Since bends of 3D or larger bends do not require boosting to minimize wall thinning, the booster range is limited to a 3:1 ratio of the largest diameter the machine can bend.

Boost Pressure – is varied throughout the bending process to provide the best results. Pressure is pre-programmed to suit the material and wall thickness requirements. Up to 10 pressure zones are available to provide

ultimate flexibility.

CLR adjustment – the booster is adjusted to the correct centerline radius by means of a hand crank and lead screw. The booster is hydraulically clamped in the correct position which also speeds the adjustment.

Pipe diameter changes – are effected by replacing two inserts in the clamp jaws.

Short Pipes and bends using mandrels – can be boosted using a special blind adaptor.

Booster Specification

NC Bender size	No. 2	No. 3 and 4
Maximum boost radius	6"	12"
Max Boost pressure Tons	10	25
Max Pipe Outside Diameter	2.375"	4.500"
Programmable zones	10	10

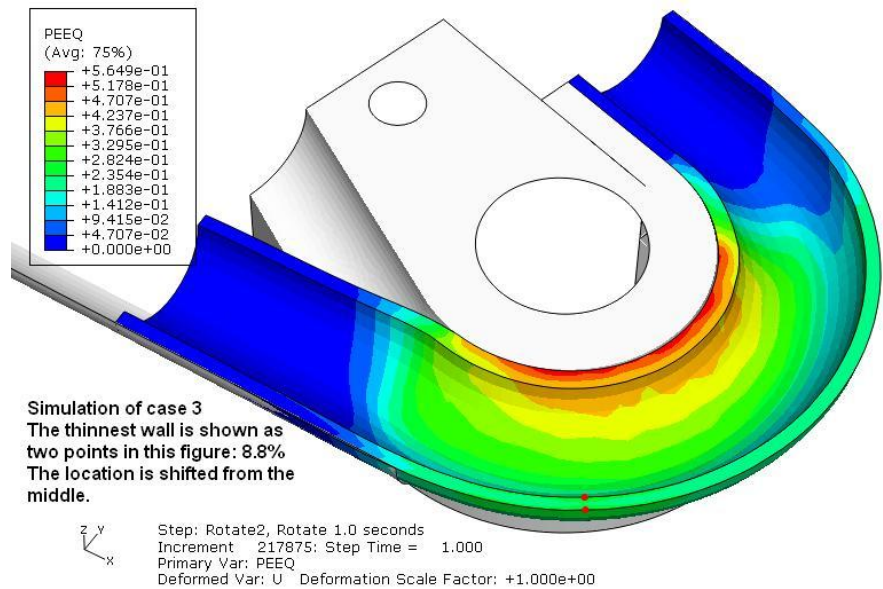
Digital Dial-A-Bend SE

To control the boosting program, the bender will need a control upgrade and the Digital Dial-A-Bend' Control with the DAB SE PLC is included. This state-of-the-art Programmable Logic Controller has been completely updated with enhanced user interface capabilities and an advanced color touch screen display for outstanding production control and bender performance. The DAB SE' PLC provides state-of-the-art controls technology for semi-automatic benders.

Featuring bending program storage and recall, electronic self-diagnostics, and

programmable springback capabilities, the DAB SE' PLC control provides high productivity and efficiency in bending operations.

Turret or analog - DAB SE PLC retrofit on a turret or analog controlled bender provides both operational and safety advantages. For quick and easy set-up, improved reliability, and easier maintenance and repair, Pines DAB SE' PLC is an essential component in the technology process for a wide range of bending applications.



Pressure Die Assist Booster

FEATURE HIGHLIGHTS:

- Enhanced User Interface
- Advanced Color Touch Screen Display
- Bending Program Storage & Recall
- Programs Up To 32 Bends Per Part
- Electronic Self Diagnostics Program
- Programmable Springback Calculations
- Additional Safety Features available
- Programmable Early Mandrel Extract
- Soft clamp option for pipe manipulation.
- Easy Set Up and Operation
- Additional Options Available Based On Application Requirements



INSTALLATION

The installation must be installed at Pines Westlake facility and will take about three weeks. (Subject to capacity availability.)

WARRANTY:

- 1 YEAR PARTS on control and retrofit parts.

SHIPMENT:

- LEADTIME: 6 TO 8 Weeks (2 - 3 weeks for the Install)
- F.O.B., Westlake, Ohio
- NOTE: When ordering please indicate motor electrical requirements stating your specific voltage, phase and frequency.
- NOTE: All freight costs are the responsibility of the customer.