

THE ADVANTAGE SERIES

BiDirectional Concrete Pipe Machines

Besser developed the Advantage Series of Bidirectional pipe machines with producers in mind.

Features:

- Multiple material feed options
- Easy access for service, routine maintenance and rapid attachment changeover
- Less spillage with reduced cleanup time
- Reduced installation time with a steel pit foundation shell



ADVANTAGE MODEL	DIAMETER	MAXIMUM LENGTH
A-36	8"-36" (200 mm-900 mm)	8' (2.5 m) or 10' (3 m)
A-48	8"-48" (200 mm-1200 mm)	8' (2.5 m) or 12' (3.5 m)
A-60	12"-60" (300 mm-1500 mm)	8' (2.5 m) or 12' (3.5 m)
A-84	18"-84" (450 mm-2100 mm)	8' (2.5 m) or 12' (3.5 m)

BiDi® A-Series machines combine advanced pipemaking technology with the time-tested Bidirectional Rollerhead System to produce pipe with excellent wire-to-concrete bond, improved compaction and superior appearance.



A UNIQUE PRODUCTION ADVANTAGE

Quality. Highly skilled staff follow stringent quality guidelines during the design, manufacture, assembly and testing of the equipment. All Besser equipment is manufactured with precision machinery, ensuring consistent quality.

Durability. The frame was engineered using finite element analysis (FEA) computer modeling to ensure stability. The welded steel frame is fabricated from heavy-duty rectangular steel tubing with internal bracing. The posts house and protect cylinders and critical hydraulic and electric lines while the open three-post concept permits easy access for routine maintenance and cleanup. The design of the machine has eliminated most of the material collection areas: covers have been added to exclude material and protect components.

Flexibility. Advantage machines produce all round pipe joints including straight wall mortar joint, mastic, flat gasket, confined O-ring, D-gasket, roll-in gasket, integrated and single offset profile gasket. Reinforced, non-reinforced and thin wall pipe can be produced along with specials such as bevel pipe and manhole riser sections. The standard varying length feature allows different lay length products to be intermixed during the same production run.

Cover photo: The Model A-48 Advantage machine with Vision 3 full machine automation. The Advantage Series of pipe machines combines advanced pipe-making technology with the Bidirectional Rollerhead System to produce a superior quality end product.



Side view of the Model A-60 Advantage machine illustrating the unique three-post frame configuration. This design allows material to be fed into the holding hopper from the rear (as shown here) or either side.

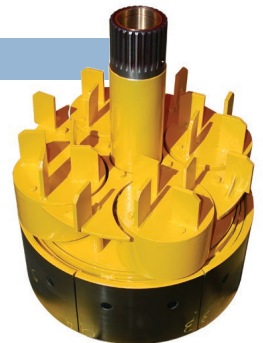
STANDARD FEATURES

Bidirectional Rollerhead Drive System

Quick-change BiDi Rollerhead assemblies are standard attachments on Advantage machines. Each features an involute spline for driving the rollerhead. The counter-rotating assemblies are available in a complete diameter range and are designed for easy removal of steel hoods for cleanout. These assemblies also incorporate greaseless sealed ball bearings for improved performance and reduced maintenance. The machine can be supplied to accept either quick-change BiDi rollerheads or conventional flange-mount heads.

Holding Hopper and Conveyor

The holding hopper capacity is based on machine size and the hopper features rounded corners to prevent material buildup. An optional spray-in liner is available to improve material flow, facilitate cleanup and extend hopper life. Belt support rollers are sealed; head and tail pulley bearings are greaseable. The conveyor assembly is mounted on rollers and is hydraulically positioned for optimum material feed onto the rollerhead. A seamless-type conveyor belt with molded edging prevents material spillage.



Turntable Assembly

The round turntable features tapered support rollers on the perimeter and a roller assembly for centering. The table includes pipemaking stations with accurately located cutouts for drop-in bottom centering plates for quick changeover of attachments. The table turner incorporates an electric gear motor drive that provides smooth start/stop and accurate indexing. A deck plate covers the area between the turntable and the plant floor to facilitate cleanup.

Self-Cleaning Top Table

The self-cleaning top table has a fully machined bottom surface and captive fasteners for quick and accurate attachment of top centering plates, tongue formers and O-ring groovers. Self-cleaner blades rotate automatically within the top table to prevent material accumulation. The top table stroke can accommodate varying mold lengths down to 1' (0.3 m), with alternating accurate lengths produced automatically.



The vertical impact function of the hydraulic vibrator provides efficient compaction of the concrete in the bell. Use of the vibrator also reduces bell cycle times and eliminates the collector ring and its maintenance.

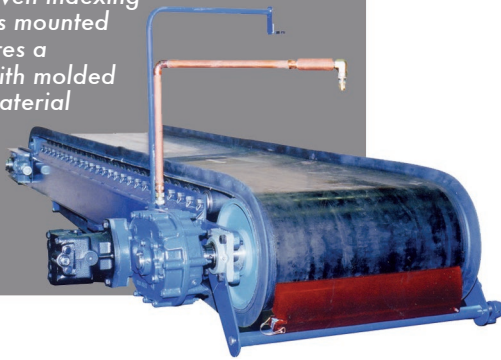


The hydraulic bell packer assembly features quick-change turning and vibrating standards for even more quality and efficiency in the pipe plant. Protective bellows on the shafts keep the guide system free from material contamination.



The remote crosshead power unit is mounted on the machine frame at conveyor level and is easily accessible from the work platform for service and routine maintenance. The power unit shroud dampens noise and protects components.

The hydraulically driven indexing conveyor assembly is mounted on rollers and features a seamless-type belt with molded edging to prevent material spillage. The belt scraper, conveyor water spray bar and infrared material sensor are also shown.



Bell Packer Assembly

The bell packer assembly utilizes a self-cleaning top vibrating plate with a vertical impact hydraulic vibrator to provide efficient pallet/bell vibration. During attachment changeover, the turning and vibrating standard is placed in notches on the vibrator plate, then simply rotated and clamped into position. Besides saving time and labor, this entire process is accomplished from floor level with no need to enter the machine pit. The assembly features remotely adjustable stop rods so the bell packer/pallet engagement height can be set from the machine control panel. The bell packer uses a gear drive slewing ring with a hydraulic rotary union which permits the turning and vibrating standard to oscillate or rotate. Maintenance and cleanup are facilitated as the bell packer assembly is attached to the walls of the machine pit rather than the floor, leaving the area underneath the assembly open.

Changeover Table

Each BiDi Advantage machine is equipped with a changeover table for supporting the rollerhead assembly and either the oscillating tongue former assembly or the top centering ring during attachment changeover, maintenance and cleanup.

OPTIONAL ENHANCEMENTS



Installation of the optional steel pit foundation shell utilizing a right-hand-turn pit access stairway. Use of the shell reduces custom formwork and installation expense.

Pit Foundation Shell

A steel pit foundation shell is available to reduce custom formwork and installation expense. The shell forms all pit walls up to plant floor level and the fabricated steel panels become an integral part of the foundation after the concrete is poured. Mounting pads for major components including the machine frame and bell packer assembly are included, and various pit access configurations are available. An additional set of panels can be supplied to form the outside pit shell for areas where the soil cannot be used as the external form. All panels are bolted together and break down for shipping.

Oscillating Tongue Former Mechanism

This mechanism operates oscillating tongue former assemblies for production of such joints as mortar, roll-in or profile gasket. The option includes a solenoid valve, cylinder and controls.

Automatic Lube System

The electrically-powered grease pump utilizes multiple grease injector banks to automatically lubricate 20 or more critical areas on the pipe machine at desired intervals.

Note: Various voltages and starter options are available.

Machine Control

The BiDi can be controlled manually with the Auto-Pack Plus feed conveyor drive control system or the Vision 3 Automation System for completely automated operation.

Vision 3 utilizes a programmable logic controller (PLC) for solid-state electronic control. Versatile pre-programmed logic maintains control of the basic machine cycle and numerous built-in features. These include maintenance schedules, troubleshooting and an extended memory capacity for storage and recall of setup information for up to 200 different pipe sizes and configurations. Machine adjustments are made using a color touch screen interface in the freestanding console. The console also houses a flat panel color monitor that allows the machine supervisor to view manufacturing through three different closed circuit television cameras.

The following specifications and dimensional drawings represent information on the Model A-60 x 8' (2.5 m). For specifications covering other Advantage machine models, contact your Besser sales representative.

Machine Capacity

- Pipe Diameters: 12" - 60" (300 mm - 1500 mm)
- Pipe Lengths: 1' - 8' (0.3 m - 2.5 m)

Machine Specifications

- Holding Hopper Capacity: 4.6 cu yd (3.5 cu m)
- Feed Conveyor: Hydraulic Drive (variable speed)
- Bell Packer Turner Speed: 18 RPM (maximum)
- Bell Packer Vibrator: Vertical Impact 3600 RPM
- Hydraulic Drive

BiDi Crosshead

- Main Motor 200 hp (149 kW):
3000 RPM (50 Hertz) or 3600 RPM (60 Hertz)
- Packershaft Speed: 75 - 375 RPM

Hydraulics

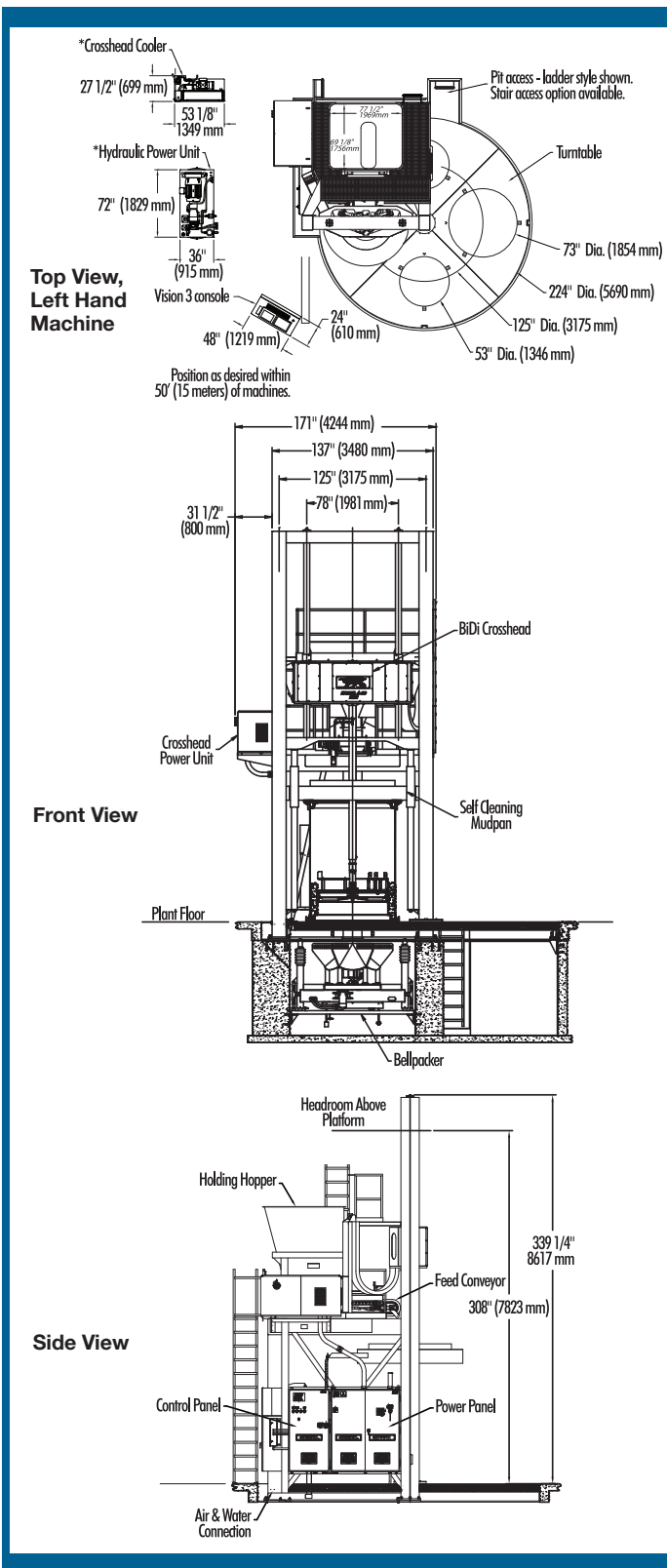
- Hydraulic Power Unit: 60 hp (45 kW)
- Hydraulic Tank Capacity: 200 gal (757 l)
- Main Lift Rams: 4" diameter (102 mm)

Shipping Specifications

- Frame Shipping Dimensions:
12' x 12' x 29' 8" (3.7 m x 3.7 m x 9 m)



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