

Delivering the Essential Ingredient for Concrete Homes

Contributed by Concrete Homes

Although most concrete home builders probably consider choosing the block, ICF unit or panels the first priority, choosing the equipment that delivers the concrete is a close second. This includes a range of pump and conveyer trucks and cranes.

As in any field, improvements in technology continue to add options or functions that make home building more efficient, more cost effective or safer. Concrete Homes talked with the following companies (Putzmeister, Schwing America, Elliott Equipment, Cranes and Equipment, and Westminster Hydraulics) to get an overview of what is going on in the equipment market.

Putzmeister's latest improvements focus on ergonomics to reduce operator stress and fatigue. The proportional radio remote boxes that have been standard on the company's line of pump trucks are being replaced by the new OneTouch system, a major part of Putzmeister's new Ergonic Boom Control System for truck-mounted pumps. The most novel feature is the 3-axis joystick which controls all boom and rotation movements, keeping the end hose level at all times.

Control box shape and grab handles have been redesigned with a slightly modified layout of switches to fit a user's natural hand patterns, when resting or in motion. The levers were re-sized to work better with gloved hands. The remote box is light enough to fit around the operator's waist comfortably.

Safety mechanisms are also part of the OneTouch technology. The operator can keep a constant eye on the construction site while operating the unit by touch; and the hoseman, by eliminating any swinging of the end hose when pumping at high output levels, can control steady concrete placement. The mechanisms, which constantly monitor the positioning of the booms, prevent the possibility of a collision between arm sections or positioning error by the operator.

According to field-trial results, operators find that the new remote doesn't require any additional training. Also, the new software works with existing hydraulic, electronic and sensor systems. If, for some reason, the operators want to revert back to conventional operation, they just flip a switch. Developed in conjunction with HBC-radiomatic, Putzmeister has made its new radio remote control standard on its main boom line. Operators get such a clean signal, which automatically hops every 60 milliseconds, that they don't need to turn a dial to change frequencies and risk losing a signal. With 127 frequencies to work with, it is easy to use a particular one for a short time before changing and thus avoid interference.

From Schwing America, builders might choose the S 31 HT, a truck-mounted telescopic concrete pump, because of its advantage over pumps that utilize traditional unfolding boom sections. It is like two machines in one. In low overhead situations, the boom needs only 18 feet 8 inches unfolding clearance to provide 87 feet of horizontal reach. The telescopic section with a patented Auto-Scissors pipeline combined with 545 degree boom rotation enables the operator to cover a wide pour area while keeping the end hose above the pour. When used with wall forms or ICFs, the boom provides precise point-and-shoot placement. Operators also find they can save time with the telescopic section because there is no need to adjust multiple boom sections or deal with boom position sensors when trying to stay within the operating zone.

Another advantage of the S 31 HT is the Generation 3 pumping system that provides smooth operation at all speeds. The twin cylinder pumping cylinders are sequenced by Schwing's easily rebuilt Rock Valve, which significantly lowers cost-per-yard maintenance expense. The patented valve maintains pressure on the concrete automatically even for long-term operation. For ICF pours the smoothness of the Generation 3 pump kit translates to a steady flow of concrete that is accurately placed in the forms eliminating spilled concrete.

Enhancing ease of use even further is Schwing's Spread Spectrum radio remote control, available on all Schwing boom pumps. This interference-free remote hops frequencies 50 times per second. It can operate safely around other signals, such as other remote-controlled booms, cell-signals and two-way radios, and allows the operator to be in the most advantageous position to view the end hose.

Earlier this year, Elliott Equipment Co. debuted the VersiPlacer, a versatile unit that combines a concrete pump, crane and workplatform, with a placing boom. Using a seven-meter, full-powered, 360 degree rotating jib section, it offers an

unusual working range. Operators can, for example, pour around columns inside an existing building and pour through a small window into a second floor of a building.

Since this unit has a crane, there's no need to bring in a second work vehicle to the job site. With its 9,000-pound lift capacity, it can set forms, lift trusses and do other crane work, using hydraulic operation for precise control. The telescopic work platform, an oversized 40 inches x 60 inches, with 600 pound capacity and 75-foot working height, includes remote control for safe pouring of concrete or shotcrete directly from the platform. The multi-tasking vehicle is efficient enough in function to require only two operators instead of the usual four. With the radio remote, only one person is required at the pour location. This compact package translates into improved scheduling because there is less coordination of machine deliveries and less job time lost to changing machines. In turn, this translates into cost savings. This machine also offers a low 12-foot eight-inch unfolding height and an 18-foot outrigger spread. If the builder chooses, it can be used with his own trailer concrete pump rather than the Elliott-provided Putzmeister one, which can pump 150 cubic yards per hour. The combo design also eliminates a lot of the "knuckles and elbows" that add to time spent on maintenance.

Cranes & Equipment's line of cranes offers concrete home builders units that handle the placing of removable forms from those two feet or three feet wide to huge 20-foot panels for cast-in-place or prefab concrete construction. Typically, this would be a knuckleboom. Building with the larger size panels is becoming more popular because it cuts down on labor. The cranes, which are mounted on highway trucks, may have a 100-foot reach. The longer the reach and the heavier the load to be lifted, the heavier the crane. The company also has rough terrain cranes that can be used to build at sites with a difficult lie. These cranes are hauled to the job sites on trailers rather than mounted on trucks.

Cranes & Equipment cranes deal with extremes in cold temperatures with an in-tank hydraulic heater that works while the crane truck driver is going to the job site. By the time he arrives, the unit is ready to work, increasing efficiency. The rest of maintenance is typical: proper greasing, changing oil and filters, checking and adjusting wear pads and tightening mounting rods.

Crane operators for smaller building companies would be trained as mechanics as well as operators. Larger development firms might have employees working purely as mechanics and others purely as operators. The Department of Transportation requires that operators inspect the cranes daily before use. The Occupational Safety and Health Agency also requires an annual inspection. Cranes are regulated by the American National Standard Institute and the American Society of Mechanical Engineers, as well.

Another approach to concrete delivery is the conveyor mounted truck. Westminster Hydraulics distributes the Putzmeister Telebelt. It handles concrete mixes from 0 to 12-inch slumps. The dryer the slump, the faster it sets up, making it particularly good for doing foundations, where the builder can reduce the time between laying foundations and raising the ICF or masonry walls. This unit can also deliver materials ranging from sand to 4-inch aggregate, which also makes the unit good for handing drainage around the foundation. Builders using the Telebelt can keep mix designs matched exactly to customer specs without admixtures and without concern about inconsistency. The conveyor design allows for smooth, surge-free flow, and speed control from 0 to 9, which allows the operator to select output from a crawl of a yard an hour up to a maximum rated 360 cubic yards. On the high end, builders can do a 130-foot wall. The belt range varies from 50 feet to 80 feet to 105 feet. The latter is the most common.