

**Portable Modular Conveyor-Material Placer**

**INNOVATION DESCRIPTION:** The Portable Modular Conveyor-Material Placer (PMC) is a **quick, easy, dependable and cost effective way to place materials** in the limits of the confined work area.

**WHAT HAS THE PORTABLE MODULAR CONVEYOR CHANGED OR REPLACED:** This specialized piece of equipment was developed to place concrete in front of a concrete slip form paving machine. The typical method of placing concrete requires a self-propelled belt placer which is very expensive to purchase and mobilize to the jobsite. There is a **significant cost savings** in labor and equipment with the PMC. It is a **direct replacement for conventional material placing equipment such as a Gomaco RTP, a CMI MTP, and all in grade belt placing machines.**

**ORIGIN AND PROGRESSION:** The PORTABLE MODULAR CONVEYOR was conceived in the summer of 2007 to **minimize mobilization expense, increase portability, and enhance productivity.** It is a **unique solution to material placement**, and has a **patent award** from the United States Patent Office. It was first used on the reconstruction of Carpenter Road in Ann Arbor, Michigan, in the Fall of 2007. In August of 2008 the second Prototype was used on an I-75 reconstruction project near Saginaw, Michigan, on a concrete overlay project at the Cobb County Airport in Kennesaw, Georgia, at Detroit Metropolitan Airport North Terminal Project and various other paving projects in Michigan in 2007, 2008, and 2009. Since sales and marketing efforts began in November of 2009, the PMC has been either **sold or rented to contractors around the country** including The **J.B. James Construction, LLC**, Baton Rouge, Louisiana, **Kiewit of Dallas, TX**, **Angelo Iafrate Construction Company**, Warren, Michigan, **Shipley Contracting**, Burlington, Iowa, **Bocco Construction Company**, Iron Mountain, Michigan, **Sherwood Construction Company**, Wichita, Kansas, **Hawkins Construction, Inc**, Omaha, Nebraska, and **Security Paving, Inc**, Sun Valley California. The most recent sale was to **Graham Construction, Inc**, Spoken, Washington.

**WHY IS THE PORTABLE MODULAR CONVEYOR INNOVATIVE:** The Portable Modular Conveyor is **designed to attach to any front-end wheel loader of a 3 cubic yard capacity**, such as a Caterpillar 938, or larger that is equipped to accept attachments and is equipped with a third valve control. The third valve function can be retrofitted to most loaders. It may also be adapted to other types of equipment such as excavators or Skylifts. The conveyor is **operated from inside the loader cab** using the hydraulic controls and power of the wheel loader to propel the hydraulic motor. The low torque high speed hydraulic motor on the belt conveyor requires a pump feed of 40 gals per minute and 3000 psi. The unit is compact and lightweight at just 10,000 pounds. It has a **proven record of placing over 300 cubic yards of concrete per hour** to the road grade using dump trucks hauling 11 cubic yards per load. It has outperformed the conventional material transfer placer systems by two to one and **the initial cost is roughly one fourth of the traditional machines used in this application.** The **operation, reliability, and maintenance expense are also much more cost-effective** than conventional placers. It is simple to operate and requires very little training time. It **replaces a very expensive dedicated piece of equipment** that would be parked idle when there is no material to place. When there is no work for the Portable Modular Conveyor, the loader can perform other productive tasks and there is a minimal investment parked. As a wheel loader attachment verses a stand alone dedicated unit, the Portable Modular Conveyor-Material Placer is a most cost effective piece of equipment which **will enhance productivity and material placement quality.** It allows for better maintaining the integrity of the material being placed.

The PMC is **very dynamic and portable.** When loaded on a standard lowboy trailer for transportation, it is no wider than 8.5' wide and 21' long, making it a non-permit load for moving. When attached to the loader, the belt can be folded to a 10' length to travel in a given lane of traffic while attached to the loader. The conveyor frame can also be shifted two feet left or right from center to adapt to dumping needs or conditions.

**FUTURE USE OF THE PORTABLE MODULAR CONVEYOR:** Although it was designed for placing concrete the PMC has a **broad application across the construction industry which include spreading topsoil, placing soil cement, sand, gravel, or aggregates in road beds, backfilling sewer trenches, dams, retaining walls, agricultural goods or refuse, or anything that can be conveyed or transferred.** By varying the size and style of the conveyor the unit **could serve as a shoulder spreader.** The applications are endless. Construction Equipment Magazine has recognized the Portable Modular Conveyor as one of their "Top 100 New Products of 2009". The first year of sales has produced **six sales across the United States.** The goal for the Portable Modular Conveyor-Material Placer is to have contractors in every state across the country and throughout the construction industry using PMC Material Placer in their operation. An **11' long conveyor option** is currently available and a **unit is being developed to attach to compact wheel loaders and skid steers.**

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PORTABLE MODULAR CONVEYOR

INNOVATION ILLUSTRATIONS

Portable Modular Conveyor attached to a Volvo 110 G Wheel Loader



Figure 1-Transportable on loader at 10' width



Figure 2- Attached to loader in working position

Concrete Placement at Westover Air Force Base, Massachusetts



Figure 3- PMC receiving concrete and placing it front of the slip form paver



Figure 4- PMC with dump truck



Figure 5- 1" slump concrete discharged from belt

Figure 6- Concrete placement freeway lane reconstruction



Figure 8- Conveyor Controls

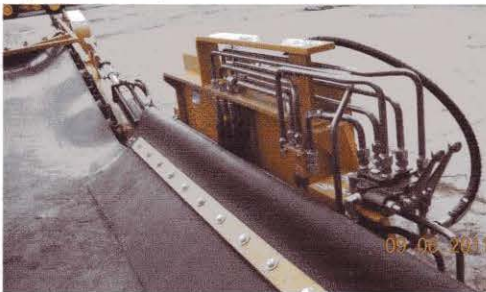


Figure 7- Trolley centered on frame to reach over barrier wall

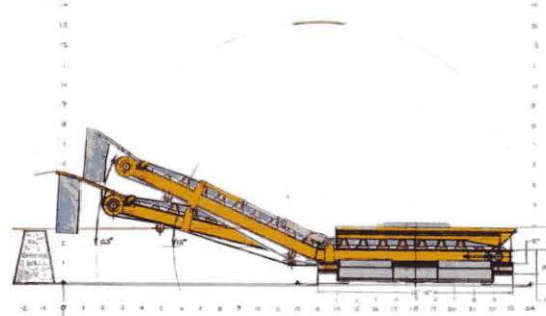
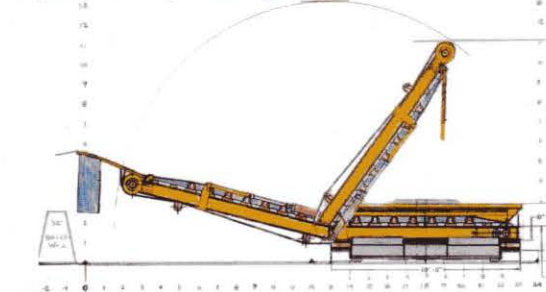


Figure 9- Conveyor folding range



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