



# Slip Form Concrete

Curb & Gutter/Highway Safety Barrier/Sidewalks/Special Applications



**KWAMHLANGA**  
CONSTRUCTION



# More than just a machine - It's a manufacturing plant

A full understanding and summary of the process of the Power Curber machine which contributed to Kwa Mhlanga Construction (KMC) Slip Form concrete successes.



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# Power Curbers & Reimer Mobile Continuous Concrete Mixer

The Power Curber 5700-C, and its predecessor 5700-B, models are Kwa Mhlanga Construction's (KMC) highly successful 'one-machine' solution for concrete in-situ slipform applications. This machine's compact size and versatility allow KMC to achieve high levels of productivity, a professional product, great finishing and all at a very competitive price. Power Curbers can manoeuvre itself out of tight spots fast making tight radius work, typically in parking lots.

Besides a variety of curbing, the Power Curber can quickly convert to pour V-drains (up to 3meters wide), U-drains, barriers, sidewalks, bridge parapets and other specialised slipform works. Aided by a mobile continuous concrete mixer (Reimer), efficiency is guaranteed specifically in remote areas. The Reimer also enable the Power Curber to adjust the concrete mix design instantly, if required.



# Ermelo U-Drain Project

Power Curber / Reimer combination for in-situ Slip Forming





# Understanding & Summary Of Slip Form Concrete

- Kwa Mhlanga Construction



## Jobsite & Machine Set-up

- Grading & site preparation ahead of the Power Curber is important for productivity and quality.
  - A Stringline is set by KMC crew, referencing surveyor's stakes.
  - The machine, equipped with sensors for steering and elevation control, follows the stringline automatically. GPS steering is also optional.
  - The Power Curber can follow a stringline around a 610mm radius.
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## Ready-Mix Supply

- Constant concrete and slump is important to both productivity and quality. This KMC achieves by means of a mobile continuous concrete mixer (Reimer). The Reimer can adjust the concrete mix design instantly. A steady supply of concrete is often the biggest determining factor in daily production, as concrete is your biggest variable.
  - Recommended mix design will vary by application. KMC consults with industry specialists (Concrete Proficiency) with regards to aggregates and mix designs.
  - Should a client request KMC to replace a typical steel cage with fibre, the Reimer automatically cut and mix the fibre into the concrete as specified.
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## Auger Conveyor

- Large capacity charge hopper, low to the ground, allows for easy discharge from Reimer or ready-mix truck supplies. The auger is hydraulically adjustable.
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## Trimmer

- Cut grades, allowing the user to pour without wasting concrete or running the mould into high spots.
  - Allows the mould and the soil to intersect, creating a perfect seal.
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## Slipform Process

- Large capacity mould hopper.
  - Constant head pressure, or the amount of concrete in the hopper, produces consistent results.
  - Vibrators mounted into mould hopper consolidate concrete and, with gravity and machine movement, force it through the mould.
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## Mould

- All moulds are custom built according to the client's specifications. Custom moulds are designed, tested and approved by the manufacturer but manufactured locally by KMC.
  - Concrete flows from the mould hopper into the throat of the mould and exits past the screed finishing plate.
  - Screed section is adjustable allowing air to escape the concrete before final finishing.
  - A great view by the operator, as the concrete exits, allow for tiny and immediate adjustments if required.
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## Operator & Crew

- KMC Crew size varies according to specified applications. A crew made up of an operator, a chute man, and 6-8 members working behind the machine is a typical team.
  - Jobsites with many tie-ins and obstacles may require more employees.
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## Finished Product

- Broom finish behind the machine is common in most curb applications.
  - Spray-on curing compound helps in the hardening process of the concrete.
  - Steel re-reinforcement can be replaced by fibre. Fibre is automatically mixed into the concrete by the Reimer.
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# Power Curber Applications

The evolution of the 5700-C Slip Form machine has allowed Kwa Mhlanga to pour larger and more complicated barriers, sidewalks, V-drains, U-drains etc. than before.





# A one machine solution

The Power Curber is truly a one-machine solution for slipform applications. Furthermore, Kwa Mhlanga Construction utilizes the Reimer continuous mixer for a constant supply of low slump concrete, where concrete mix designs can be adjusted on the go.





## Curb & Gutter

- **Quick Connect Mould Mount:** Allows the user to change moulds in as little as five minutes. The hydraulically activated hooks release one mould and grab the next one with little manual work.
  - **Radius Work:** Pour islands as tight as 610mm. The Power Curber's tight radius abilities make it ideal for parking lot islands and therefore eliminating days of hand labour in large retail parking lots.
  - **Mould Options:** Curb and gutter moulds can be built with a variety of options to give you added flexibility on the jobsite. Options include block-outs for varying the curb width, extensions for varying the curb height, and removable side-plates for pouring adjacent to existing pavement.
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## Barrier / Parapet

In addition to the standard Jersey barrier, the 5700-C pours variable barrier and other vertical structures for tunnels and high speed rails. Its low centre of gravity and size-to-weight ratio makes it ideal for barrier and parapet applications.

- **Barrier Mould Lift:** At the end of a day's pour, the hydraulic barrier mould lift allows for the user to raise the mould up and off the steel cage.
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## Sidewalks & Paving

Equipping the machine with trimmer extensions can match the cut to the required sidewalk. Kwa Mhlanga's centre pour feature allows the machine to be converted into a centre pour paver for wide sidewalks/golf cart paving.

- A variety of sidewalks, paving and drains up to 3m wide can be poured.
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## Special Application

- V-Drain Applications: Frequently in mountainous areas or water flow control above ground, concrete lined drains are required.
- Slotted Drain: One unique Power Curber application is for slotted drain pours. In this application, an inflated polymer-based tube can be fed into the front of a custom mould during the pour. The mould is built with a slot from the gutter pan to the cavity created by the tube. After the concrete has cured, the tube is deflated and pulled from the curb leaving a hidden drainage channel.
- Stadium Risers: Custom moulds for this application encompass two risers during one pass. Beginning at the bottom of the stadium, risers are poured and the machine works its way up, running on the risers poured the previous day.
- Agricultural applications: From the foundations of large poultry houses to livestock feeding troughs, to beds and flush lanes in cattle barns.

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The Power Curber is truly a one-machine solution for slipform applications. Kwa Mhlanga Construction found that the Power Curber / Reimer combination achieved the most efficient combination enabling the right mix design to feed the machine. Mix designs can be adjusted on the go.

## The following recent completed jobs by Kwa Mhlanga Construction highlight the statements above:

- 29 000 meters of U-drains (Client: Aveng Grinaker-LTA).
- 12 000 meters (2 to 3 meter wide) V-drains (Client: Basil Read).
- 7 000 meters Figure 7 curbing (Client: Basil Read).
- 8 000 meters Figure 8 curbing (Client: Basil Read).







# **Kwa Mhlanga Offers Flexibility & Options**

The Kwa Mhlanga team's Slip Form Concrete capabilities is only limited by your creativity - and your single source and solution for all your Slip Form requirements.



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