Pumping

Readymix concrete

AfriSam
Build with Confidence

Introduction

AfriSam Readymix concrete can be placed using its own dedicated pump fleet to service your individual requirements. Advantages of pumping include the placement of high quality concrete of uniform consistency faster than normal concrete into areas not readily accessible by other means.

Pumped concrete is flowable yet highly cohesive to allow for easy placing, compaction and finishing. It is specifically formulated for pumping without segregating and with minimal bleeding. AfriSam have a range of pumps available.

The pumps' hourly output varies from 18 m^3 to 70 m^3 depending on the type of pump used, the speed of the placing team and the length of pipeline. AfriSam have pumps with some of the longest boom reaches in South Africa and pipelines can be laid to extend reach.

Our pumping division will assure you of the following:
- Improved communications and better co-ordination
- Fewer delays
- A reduced risk of penalties
- A high work standard
- Improved safety on site

Reasons to use pumps

Saving time:
- The site or the element to be concreted may be difficult to get into.
- High speed of placing.
- On congested sites with limited space for transporting concrete.
- For high rise projects, placing concrete at various levels.

Saving money:
- Reducing plant costs
- Reducing labour costs

Convenience:
- Factors involved include the saving of time, money and frustration.
- The concrete will be pumped to where you need it, easily and efficiently.

The advantages of pumped concrete on residential applications are as follows:
- Removes the need to build ramps to wheelbarrow concrete onto first floor decks.
- Removes the need to break down garden walls and destroy established gardens to allow for access to readymix trucks, or other material delivery vehicles.

Factors that need attention when deciding to pump

Communication:
- Close communication between the contractor and the relevant AfriSam staff member has to be maintained at all times.

Access:
- A truck mounted pump and truck mixers need good access to the site. A truck mixer loaded with 6 m^3 of concrete weighs 30 tons. The vehicle is 8 m long and 3,5 m wide. (See AfriSam pump fleet table for width space needed for the various pumps.)

Cleanout area:
- A washout area should be provided so that truck chutes can be cleaned and the pump and pipeline segments washed out. Wash water should not be allowed to drain into the sewage systems. If there is no place to dispose of washout water, prepare a sandbagged area.

Other trades:
- During a pump operation, ensure clear access to the site for mixer trucks.
- Placing teams must be properly trained so that they can keep up with the required pumping rate.

Safety:
- Safety aspects are particularly important when pumping. High pressures are used to force the concrete through the pipeline. All staff not directly involved should keep clear of the area where pumping is taking place. No one should work underneath the boom, in case of boom failure.

Finishing equipment:
- More equipment for compacting and finishing will be needed because the concrete is discharged faster. A rough guideline is one vibrator for each 10 m^3/hr of concrete placed.

Factors that need attention when deciding to pump

During pumping
The pump operator is in charge while a pumping operation is taking place. He is responsible for the pumping equipment, pipeline and placing of the concrete. No one else may operate the pump. The pump operator has the right to terminate if it is felt that conditions are unsafe. The operator has the right to send back concrete that is felt to be unpumpable.

The pump operator is responsible for locating and clearing any blockage that may occur and will liaise with the dispatcher to delay delivery of concrete if necessary. Long delays may mean the pump, boom and pipeline may have to be emptied, washed out and reprimed.

The AfriSam placing crew handles the hose and is in constant communication with the pump operator, signalling any changes needed in the rate of placing or boom movement.

The hose handler will endeavour to place the concrete as close as possible to the position it is needed to save handling and stop the concreting from segregating. If it is necessary to move the concrete by shovel, the labourers should move, but not throw concrete and not prod it into place with the poker vibrators. As concrete is placed, the pumping crew will "break back" pipes and empty the concrete into the area to be concreted. The pipes will then be washed out before the concrete hardens.

Last load
To avoid costly delays, estimate how much concrete must be ordered to complete the pour when the third last truck is discharging its load. The customer will call the Contact Centre to confirm the final quantity required. The pump operator collects the delivery notes handed to him by each truck driver. At the end of the pour, the notes will be checked and signed for the amount of concrete received. The invoice will be for this amount at the rate agreed upon in the quotation.

Responsibilities
AfriSam Readymix undertake to deliver readymixed concrete, which has been designed to achieve a specific target strength at 28 days, and is of the correct workability to be pumped. The pump operator and his crew are responsible for placing the concrete as close as possible to the designated area.

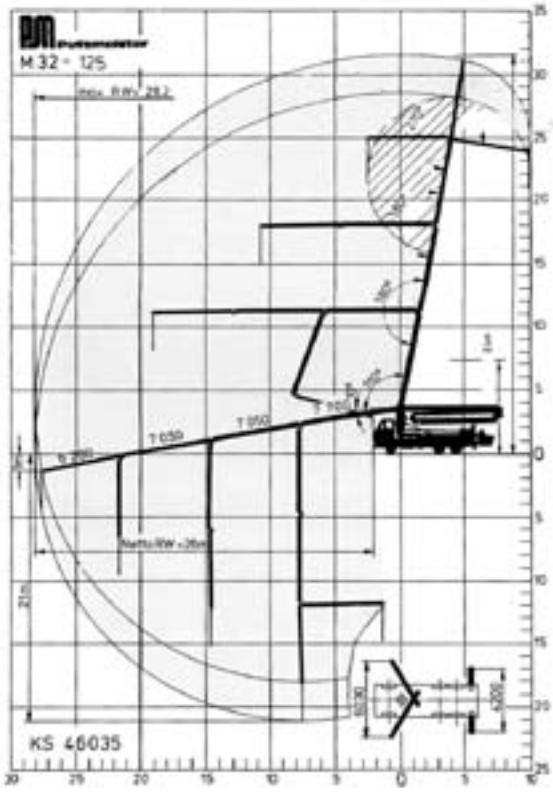
Adding water
Water added by the contractor to achieve a workability higher than ordered must be signed for by the contractor or the site representative. The responsibility for this concrete then shifts to the contractor.

Compacting, finishing and curing
AfriSam Readymix is not responsible for any action taken by the contractor with regard to compacting, finishing and curing of the concrete.

Pump fleets

The AfriSam pump division will assist you with the selection of the correct boom length and the best set up position, in order to:

- Eliminate the need for pipelines, thus reducing the risk of damage to reinforcing steel.
- Reduce the need to move the pump during the pour. The AfriSam fleet of concrete pumps assures you of the availability of a pump that meets your requirements for both output and boom reach.



Pump fleets

Delays:
- Readymixed concrete has a "shelf life" of about three hours, from adding water at the plant to the time the initial set takes place. This will depend on the mix design of the concrete.
- AfriSam must be informed if the site will not be ready in time (to within 30 minutes), or if the placing team cannot keep up with the pump's placing rate.

Ordering concrete to be pumped

Concrete to be placed by pump must preferably be ordered two weeks in advance, so that AfriSam can allocate the correct pumping equipment and schedule processing of any special mix design needed, to ensure that the concrete meets your requirements and complies with your specifications.

Tenders and quotations:
- If it is decided that the concrete will need to be pumped, include the cost of setting up the pump and adjustments that have to be made to mix proportions to accommodate pumping.

Acceptance and confirmation:
- Confirm the date and time of your order when the quotation is accepted, or arrange to confirm these details later – at least 72 hours in advance, to avoid cancellation fees.

Pre-pumping site inspection

For pump jobs it may be necessary to meet a few days before for a pre-pump site inspection. The site inspection is done to assess the following:
- Access for the pump and truck mixer to manoeuvre on site.
- Equipment needed to complete the job as efficiently as possible.
- Ascertain whether there is adequate water supply (on site) and a washout area.
- Assess specific safety aspects on site.
- Assess special site requirements – some residential areas have curfews on construction work.
- Ensure the customer is aware of the pump priming requirements.

Larger or more complicated pours:
- Large pours may require more than one pump. It may entail the installation of a static pipeline, which will be left in place throughout the building process. In these cases, the pre-pumping site inspection will be arranged well in advance and the engineer may need to be involved.

The main aspects assessed would include those already detailed plus the following:
- The length of pipeline, bends and anchorage
- Traffic flow to ensure minimal backing up of trucks
- Interference with other trades
- Access to compressed air for cleanout
- Nearby storage area for spares and extra pipes

AfriSam Pump Fleet

Gauteng Fleet

Fleet no.	Pump	Capacity (m^3/hr)	Boom size (m)	Boom reach (m)	Width space needed (m)	Application
	OFF ROAD	40	22	vertical - 22 horizontal - 19	6	Residential, first and second floor slab. The pump has to stand adjacent to the slab. Small pours (0 - 30 m^3).
P55	Putzmeister 1407	40	22	vertical - 22 horizontal - 19	6	
P46	Putzmeister	45	28	vertical - 28 horizontal - 24	7	Residential and large buildings, bridges. Preferably medium and large pours (30 - 200 m^3+).
	OFF ROAD	55	36	vertical - 36 horizontal - 32	9	Large buildings, for high discharge rates. Used when there is no space to get close to the slab. This pump requires a bigger space to establish. Preferable for large pours (100 m^3 +)
P47	Schwing	70	34	vertical - 34 horizontal - 30	7	
P56	Schwing	70	34	vertical - 34 horizontal - 30	7	
P57	Schwing	70	34	vertical - 34 horizontal - 30	7	

KwaZulu-Natal Fleet

Fleet no.	Pump	Capacity (m^3/hr)	Boom size (m)	Boom reach (m)	Pipeline extensions linear metres	Width space needed (m)	Application
P36	Putzmeister	75	36	vertical - 36 horizontal - 32	30	10	Large buildings, for high discharge rates. Used when there is no space to get close to the slab. This pump requires a bigger space to establish. Preferable for large pours (100 m^3 +)
P52	Putzmeister	60	32	vertical - 32 horizontal - 28	30	10	

Cape Fleet

Fleet no.	Pump	Capacity (m^3/hr)	Boom size (m)	Boom reach (m)	Pipeline extensions linear metres	Width space needed (m)	Application
P53	Putzmeister	24	22	vertical - 22 horizontal - 18	39	7	Residential and large buildings, bridges. Preferable for medium and large pours (30 - 100 m^3 +)
P48	Putzmeister	24-30	32	vertical - 31 horizontal - 28	39	9	Large buildings, for high discharge rates. Used when there is no space to get close to the slab. This pump requires a bigger space to establish. Preferable for large pours (100 m^3 +)
P30	Putzmeister	30-36	0	Static pump	120	5	This pump moves from site to site and is not hired out. Site bound for the duration of the contract.

Note: The latest pump fleets may be viewed on www.afrisam.com

Commencing a scheduled pump operation

The pump needs priming, a special mix to lubricate the pipes before it can pump concrete. The priming is made up of one bag of cement and three wheelbarrows of sand. The site is ready to accept concrete when all the necessary formwork and shuttering is in place and there is no standing water in the areas to be concreted. If delays of more than 30 minutes are anticipated on the confirmed date and time, AfriSam Readymix must be informed so that batching and dispatch of concrete and equipment can be rescheduled.

The pump will normally arrive on site about 30 minutes before the scheduled pumping is due to start. The pump operator will check that the site is ready and relay information to the controller.

The operator will then set up the pump, boom and any necessary pipeline and inform the controller of the time the first truck load of concrete is needed.

Within 15 minutes of the arrival of the first readymix truck, pumping will commence. The pipeline priming mix must be discarded either by pumping into containers or away from the slab to be poured.

Pumping will usually commence from the furthest point back towards the pump, unless this is not possible or undesirable. AfriSam Readymix must be informed if specific areas are to have different strengths of concrete, so that delivery and pumping can be scheduled accordingly.

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Readymix Plant Locations

Gauteng	**Mpumalanga**	**KwaZulu-Natal**
Alrode	Evander	Coedmore
Eikenhof	Middelburg	Ladysmith
Ferro	Witbank	Newcastle
Jukskei	Ogies	Ottawa
Kwagga		Umgeni
Kya Sands		Isipingo
Nancefield		
Olifantsfontein		
Rosslyn	**NorthWest**	**Western Cape**
Scoop	Brits	Bellville
Spartan	Marikana	City
Technikon	Rustenburg	Philippi
Vanderbijlpark		Peninsula
Vereeniging		
Wadeville		**Botswana**
Wynberg		Gaborone

Contact the regional office in your area for Sales or Technical Services or any other information.

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