



REFINA

Mixers & Spray Equipment

Mixing Plaster

Refina were the first company in the UK to promote paddle mixers for mixing plaster, launching German made tools including mixer paddles (made by Epi) and Megamixer slow speed mixer drills (made by Eibenstock) in 1985/86

Until the 1990's skim plaster was normally mixed by hand using a bicycle cog on a handle as a bumper and backing coat plasters with a hoe type paddle in a plasterer's bath. The backing coat was normally a sand and cement float coat mixed in a cement (freefall) mixer

Plaster is relatively easy to mix with a paddle mixer. Gauge the plaster in the correct amount of cold, clean water; for skim plaster this is 11.5 ltr for a 25 kg bag, roughly twice the volume of plaster to water. Add half the plaster to the water and run the Megamixer mixer drill for about 30 seconds till the plaster is wetted through and any lumps are blended in. Add the rest of the plaster and run the Megamixer till the mix is creamy and lump free. Test the consistency of the plaster mix by using a bucket trowel to check it is workable. Let the mix sit for a few minutes

"Thistle plasters should be mixed by adding to clean water in clean mixing equipment. Contamination from previous mixes adversely affects the setting time and the strength. Fresh contamination has more effect than old - so equipment should be washed after mixing. While mechanical mixing speeds the process up, there is no need to continue mixing after dispersing lumps and achieving the right consistency - over-mixing can affect setting times, lead to deterioration in workability and create difficulty in achieving a flat finish" (From the British Gypsum Thistle Multi-Finish data sheet)

Keep the mixing tools, the bucket and gauging trowel clean; plaster residues will set the new mix off quicker. Cleanliness is next to godliness for plastering and for the successful use of mixing and pumping machines

Paddle Mixer Drills

Megamixer mixer drills are now used throughout the plastering trade for mixing skim and backing coat plasters. The mix action is quick and thorough. The paddle can be simply cleaned with a stiff bucket brush or run in a bucket of water and sharp sand. Plaster mixers should be hard working, simple to maintain, robust and durable to withstand site conditions

Forced Action Pan & Batch Mixers

Forced action mixers generate a thorough mix using rotary paddles in a metal pan or drum. The material is mixed as a batch, ie a one, two or three bag mix and discharged through the pan base outlet into a barrow or transport tub. These mixing machines are suitable for backing coat plasters. The advantage of a pan mixer is the larger batch quantity and consistency of the mix. The disadvantage is that the mixer paddles should be thoroughly cleaned after every mix as any plaster residues will speed up the setting time of the next mix. Forced action mixers require a good electric supply to run the machine properly

Continuous Hopper Feed Mixers

Continuous feed mixers will mix dry plaster fed from the hopper with a metered water supply in a mixing chamber. This mixing system is the basis of the mixer pump

Electric Supply

To operate any construction equipment with an 110 volt electric motor, a good consistent electrical supply is required. Most problems with 110 volt machines are caused by the operator overloading the machine or inadequate power supply, not by faulty equipment. Machines with 1.5kw or larger 110 volt electric motor should be fitted with the larger 32 amp yellow plug and are for use with a 5kva transformer

Most building refurbishment projects use the electric supply available from the house undergoing the work. The 13 amp domestic power source is not generally suitable for running larger mixers or spray pumps



Megamixer



Forced Action Pan Mixer



Continuous Hopper Mixer

Pumping & Spraying Plaster

Spraying plaster has been commonplace in Germany for many years, encouraged by the post war shortage of skilled labour in the construction trades. Many of the experienced plaster pump users in the UK picked up their expertise working in Germany during the recession that hit the building trade in the 1990's. The main producers of pumps for plaster, render and mortars are based in Germany

Many plasters, coatings and renders used in Germany have been formulated for spray application. In the UK there is a tradition for the trowel trades to stick with existing materials and proven application methods. Plasterers trained on using pink setting, Carlite finish and browning or sand and cement floating coat, generally prefer to stay with UK materials rather than the European type plasters

Site Conditions

German building practices and construction sites generally have the right conditions for using plaster pumps successfully. Most sites will have three phase 415 volt electrical supply, good mains water pressure and central silos installed on site for cement and plaster. There is a pool of experienced pump operators and fitters and an enthusiasm to maximise the use of labour saving machinery and new materials designed for pumping

Pros & Cons Of Pumping

The advantages of spraying plaster are the speed and consistency of application (also the reduced arm ache for older spreads); the material will be going on the wall at the same rate in the afternoon as first thing in the day. An experienced three man pump gang should be able to double the output of two spreads and a labourer applying a backing coat plaster

The disadvantages of the mechanical application of plasters are similar to using mixing machines for plaster; cleaning and maintaining the equipment is essential, poor maintenance will lead to repeated service problems. The larger mixer pumps take a lot of electric current and work best on three phase 415 volt. Mixer pumps are generally not suitable for domestic work due to the lack of a 30 amp power supply

The pump user should be experienced in using, maintaining and servicing the equipment. The learning curve for new customers is steep and users need a reasonable mechanical aptitude and a willingness maintain the equipment. Refina have been selling and servicing mixer drills since the mid 1980's. Eight out of ten mixers that come back for service are in a poor condition. If this level of maintenance were to be replicated for mixer pumps, there would be repeated equipment failure and down time

Pump Selection

There is no universal pump that will successfully spray skimming, hardwall and external renders. Skim plaster requires a compact pump that can be taken from room to room and will fine spray a 2mm coating of plaster at 3 ltr/min. Hardwall, to be applied quicker than hand troweling, should be applied at 8mm at 15 ltr/min. Monocouche render will go on at 10mm at 25 ltr/min and may be pumped 25 metres up the building façade exterior. A mini pump is best for skimming, a midi pump for hardwall and a maxi pump for monocouche

Screw Spray Pumps

The screw pump with material hopper, using a rotor and stator, is the basic equipment for pumping plaster. The steel inner worm in a rubber outer sleeve pumps the material to the spray gun. The plaster is mixed with a Megamixer mixer drill or continuous feed mixer and fed into the pump hopper. The method is simple, the main requirement is that the plaster is thoroughly mixed and lump free



Mixer Pumps

The mixer pump may sound like the answer to a maiden spreads' ears; feed the dry plaster into the hopper and have it pumped to the spray lance and onto the wall, well mixed and ready for ruling, flattening and troweling off

However a mixer pump combines several linked components that work together; a continuous mixer and screw pump, a water pump and compressor. The plaster bags are opened into the machine hopper and the dry powder fed into the mixing chamber where a metered flow of water is introduced. The rotor and stator draws the mix down and pumps it along the material hose to the spray gun



Mini Screw Pump
Manual Feed



Midi Screw Pump
Manual Feed



Mixer Screw Pump
Continuous Feed