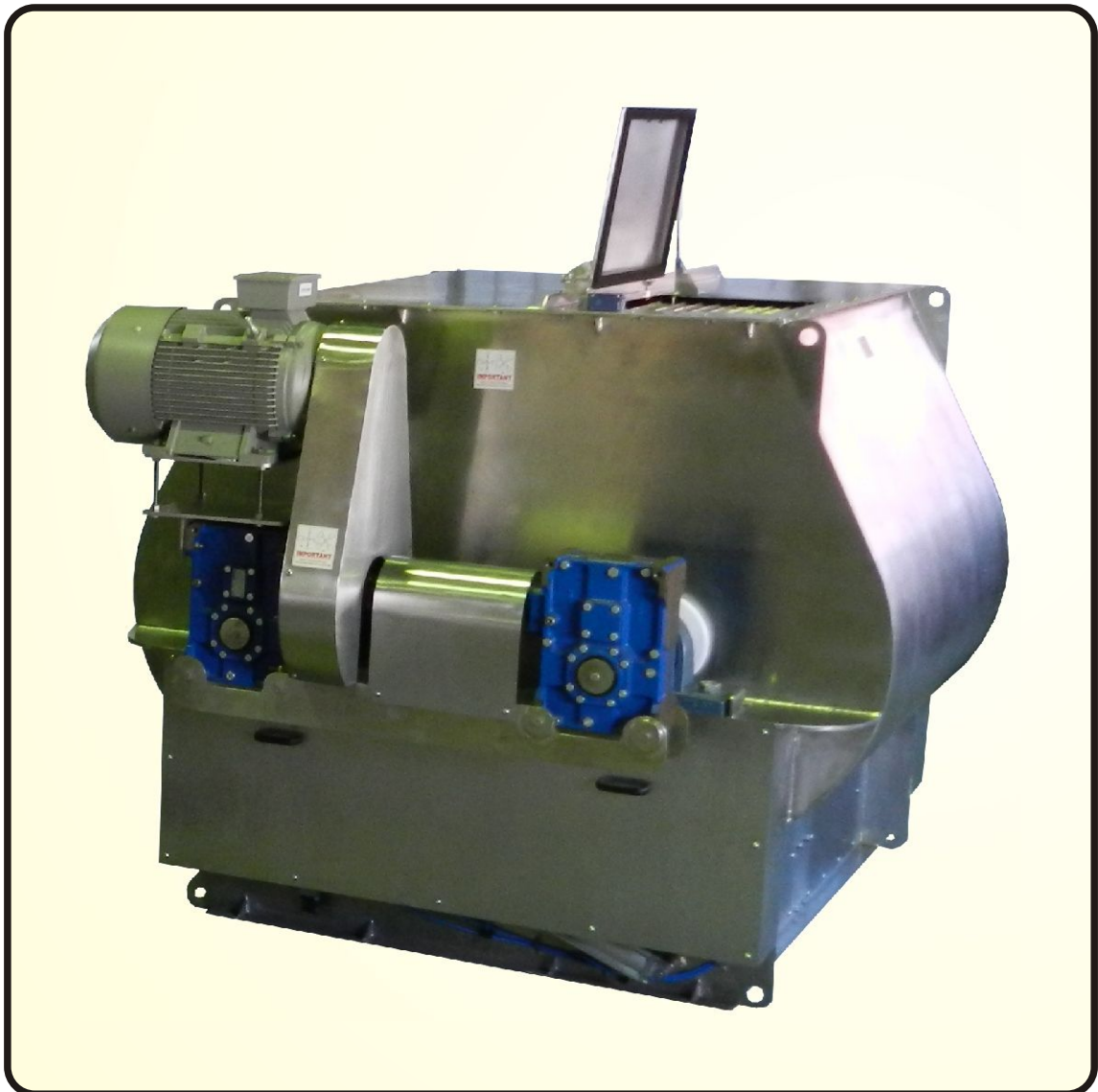




# THE GRAMEC MIXER





# ADVANTAGES OF THE GRAMEC TWIN SHAFT PADDLE MIXER



## Mechanical Fluidisation:

- ♦ Creates a homogeneous mixture independent of particle size and density
- ♦ Allows for free particle movement throughout the mixture
- ♦ Negligible heat generation  $< 1^{\circ}\text{C}$
- ♦ Gentle mixing action
- ♦ Applies low shear forces to the mixture

## Large Discharge Doors:

- ♦ Fast discharge
- ♦ No segregation
- ♦ Minimal residue remains

## Large Inspection Doors:

- ♦ Easy access for inspection
- ♦ Easy access for cleaning

## Cleaning Options:

- ♦ Dry cleaning
- ♦ Wet cleaning
- ♦ CIP nozzles
- ♦ Cleaning procedures are product dependent

## Cost Savings:

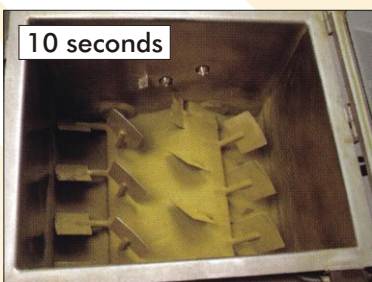
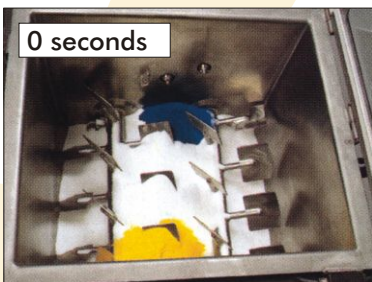
- ♦ Minimal friction on moving parts, thereby reducing wear and tear
- ♦ Exceptionally low running costs due to short mixing times
- ♦ Up to 60% saving on energy costs
- ♦ Minor maintenance cost requirements

## Steel Grades:

- ♦ Stainless steel (304 and 316)
- ♦ Standard and special carbon steels

## Twin Paddle Shafts:

- ♦ Overlapping, balanced paddles
- ♦ Mechanical fluidisation
- ♦ Optimal particle movement
- ♦ Negligible dynamic forces on the mixer structure



## Gramec Twin Shaft Paddle Mixers Are Used In The Following Industries And More:

- Abrasives • Agrochemicals • Animal Feed • Break Pad Material • Cement • Ceramics • Cereals • Chemicals • Coffee • Construction Materials • Detergent • Diamond Powder • Dry Mortar • Electrode Mass • Explosives • Fertiliser • Fish Feed • Flour • Fly Ash • Fungicides • Glass • Meat • Metal Powders • Milk Powder • Muesli • Peat • Petfood • Pharmaceuticals • Plastics • Polymer Chips • Premixes • Powders • Road Lining Material • Salt • Sand • Sewage Sludge • Snacks • Soup Powders • Spices • Sugar • Thermosetting Powder • Vegetables • Vitamins •



### Precision Mixing

The construction of the Gramec mixer offers fast mixing with low rotational speed. This means gentle product handling and homogeneous mixture after a few seconds of mixing. Two shafts with 14 paddles each create a mechanical fluidisation zone in the middle of the mixer. Low energy consumption and low shear forces create little friction, which means that even fragile products can be mixed.

### Liquid Addition

Both small and large quantities of liquid can be added. The liquid is normally sprayed into the fluidised zone. The rapid movement in the fluidised zone ensures a good distribution of liquid in the mixed product. Liquids with high or low viscosity can be sprayed onto powders, granules or pellets.

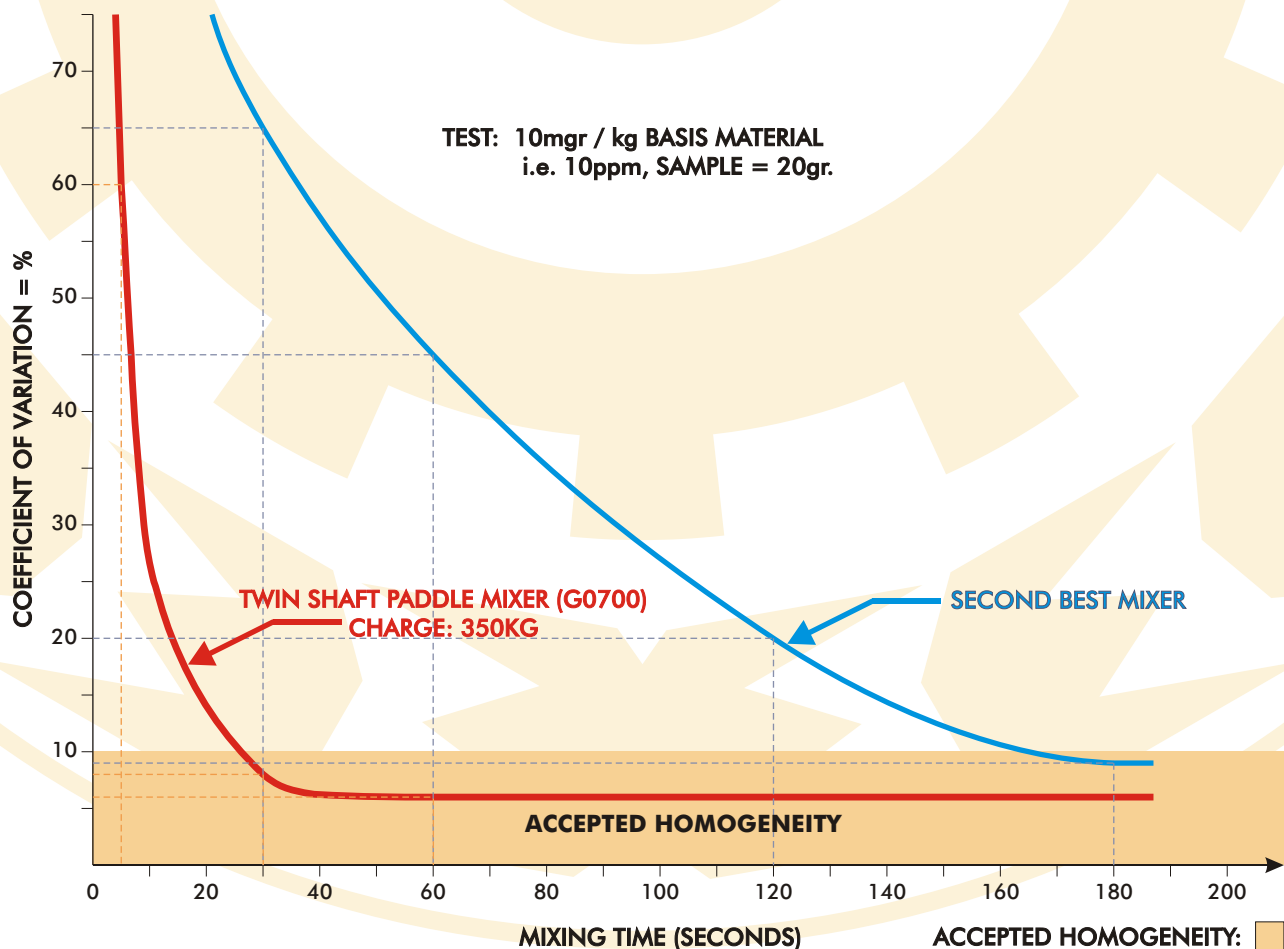
### Cycle Time

The mixing time can vary from 10 seconds up to 2 minutes, all dependent upon the products to be mixed. A cycle time of 1 minute per batch is normal for a Gramec mixer.

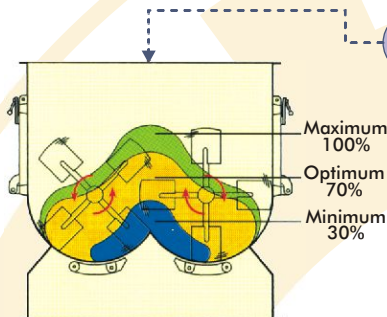
### Mixing Accuracy

The graph below shows a mixing curve based on tests done by an international research institute in Germany.

**NB. Twin Shaft Paddle Mixer = Gramec Mixer G0700**



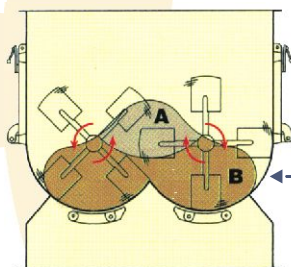
# FILLING LEVEL, PROCESS AND AUXILLIARY EQUIPMENT



## Filling Level

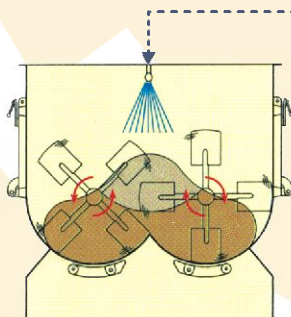
The Gramec mixer has a very flexible filling level. The illustration indicates a maximum mixing volume (green), optimum volume (yellow) and minimum volume (blue).

When operating at maximum or minimum filling levels allow for additional mixing time. The same perfect mixing result will be achieved independent of bulk density and material properties.



## How The Mixer Works

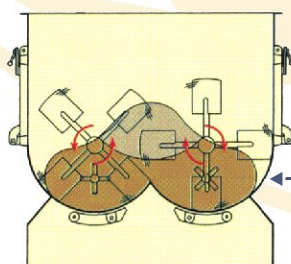
The Gramec mixer's two counter-rotating shafts lift the material up in the middle of the mixer (A) (also called the fluidised zone). The paddles are set at an angle to the paddle shafts which ensures an overlapping rotation in the middle of the mixer and they sweep the entire bottom of the mixer according to specified clearances. This creates a mixing pattern as shown in the illustration. In zone (B) there is rotational movement along the perimeter of the mixer. In zone (A) (the fluidised zone), the particles have freedom of movement which again ensures that a fast and homogeneous mixture is achieved. The fluidised zone (A) and the transport zone (B) are the basic principle behind the Gramec mixer's technology for the best possible mixture.



## Spray System

For the addition of liquids, a spray bar is fitted along the centre line between the counter-rotating shafts of the mixer, directly above the fluidised zone.

Spray bar systems are client specific with single or multiple nozzles dependent on viscosity and moisture requirements.



## Tulip Knives

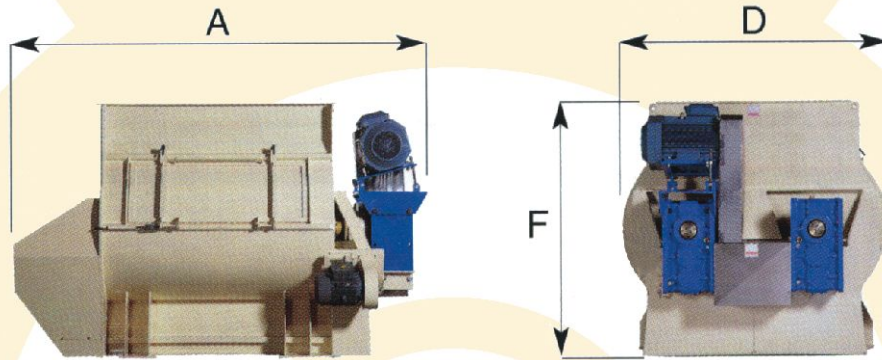
Tulip knives are mounted in the lower part of the mixer's end or side walls (see illustration) and are used for breaking down lumps. Tulip knives add high shear forces independent of the filling level.





# GRAMEC MIXERS

## DIMENSIONS AND SPECIFICATIONS

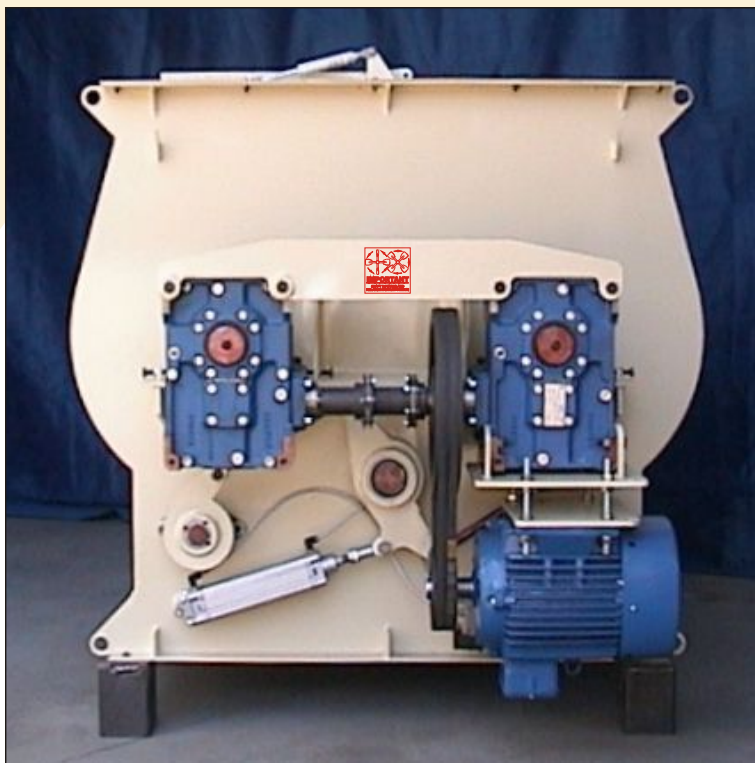


MODEL	MOTOR SIZE (kW)	A	D	F	NETT WEIGHT (kg)
G0028	1.5	860	520	605	180*
G0084	3	1035	790	805	280*
G0168	4	1250	845	990	380
G0280	4/5.5	1450	1020	975	650
G0490	5.5/7.5	1755	1260	1195	880
G0700	7.5/11	1940	1370	1310	1200
G1050	11/15/22	2065	1560	1475	1600
G1400	15/22/30	2320	1710	1560	2200
G2100	22/30/37	2610	1970	1860	2700
G2800	30/37/45	2890	2190	1890	3200
G3500	30/37/45	3100	2300	2000	4000
G5040	37/45/55	3560	2720	2350	4500

\* Weight includes trolley with built in receiving drawer.

All measurements and weights must be seen as guidelines and can differ for various options.

Custom size machines can be discussed.



**Typical Drive Arrangement for the Gramec Mixer**



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