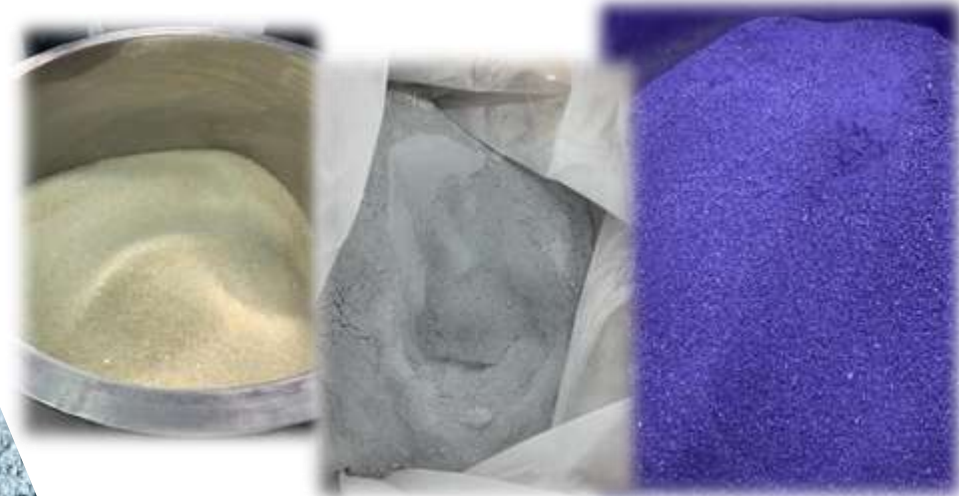


# MIXACO

A Technical Comparison of Container Mixers used in  
the Powder Coating Industry



September 6-8, 2023  
The Westin Lombard, IL

# 1965

## MIXACO enters the Mixing technology

### Experience

Knowledge and expertise from more than 50 years in the engineering business means our know-how is second to none. We've done more than just follow the continuous development of process engineering—we've helped to shape it. To this day, many of our patented solutions are still making processes easier for our customers and ensuring greater efficiency in industrial workflows.

### Quality

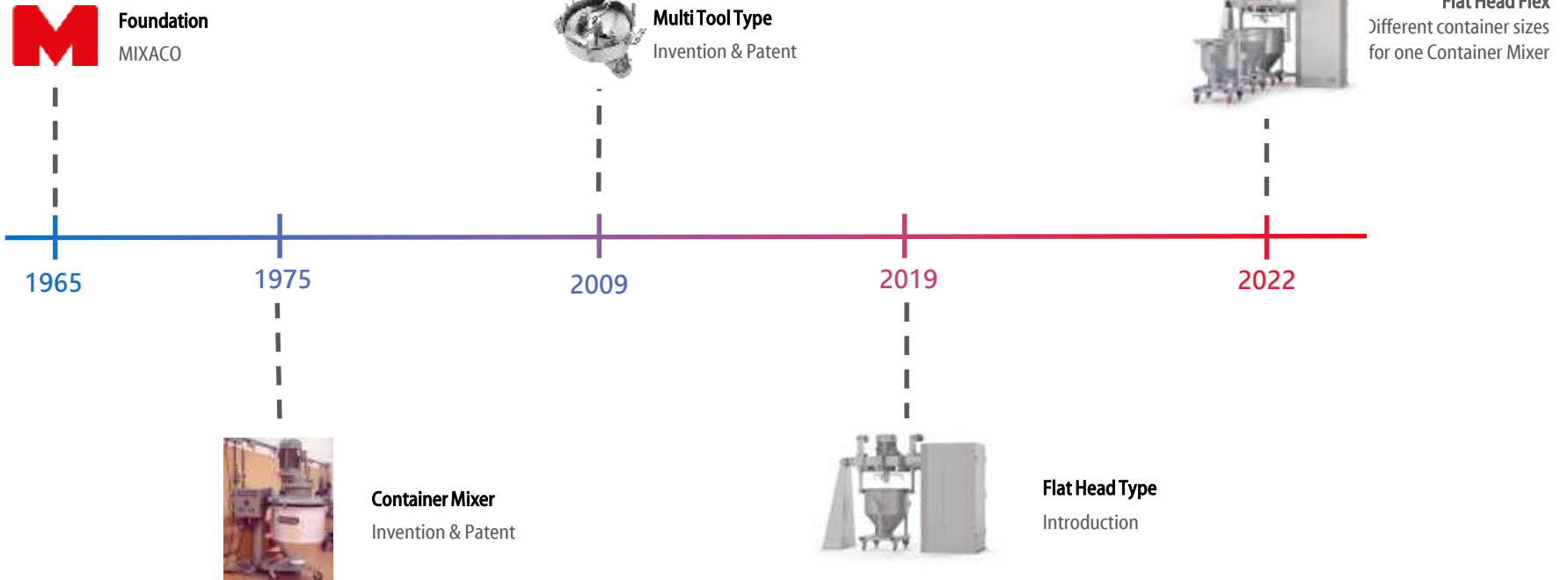
In the mixing technology industry, the name MIXACO has always been synonymous with outstanding quality. High-grade components and robust design in combination with first-class workmanship guarantee the durability of our machines. The most convincing proof is that some of our machines have been in use for more than 30 years and are still going strong.

# Container Mixers

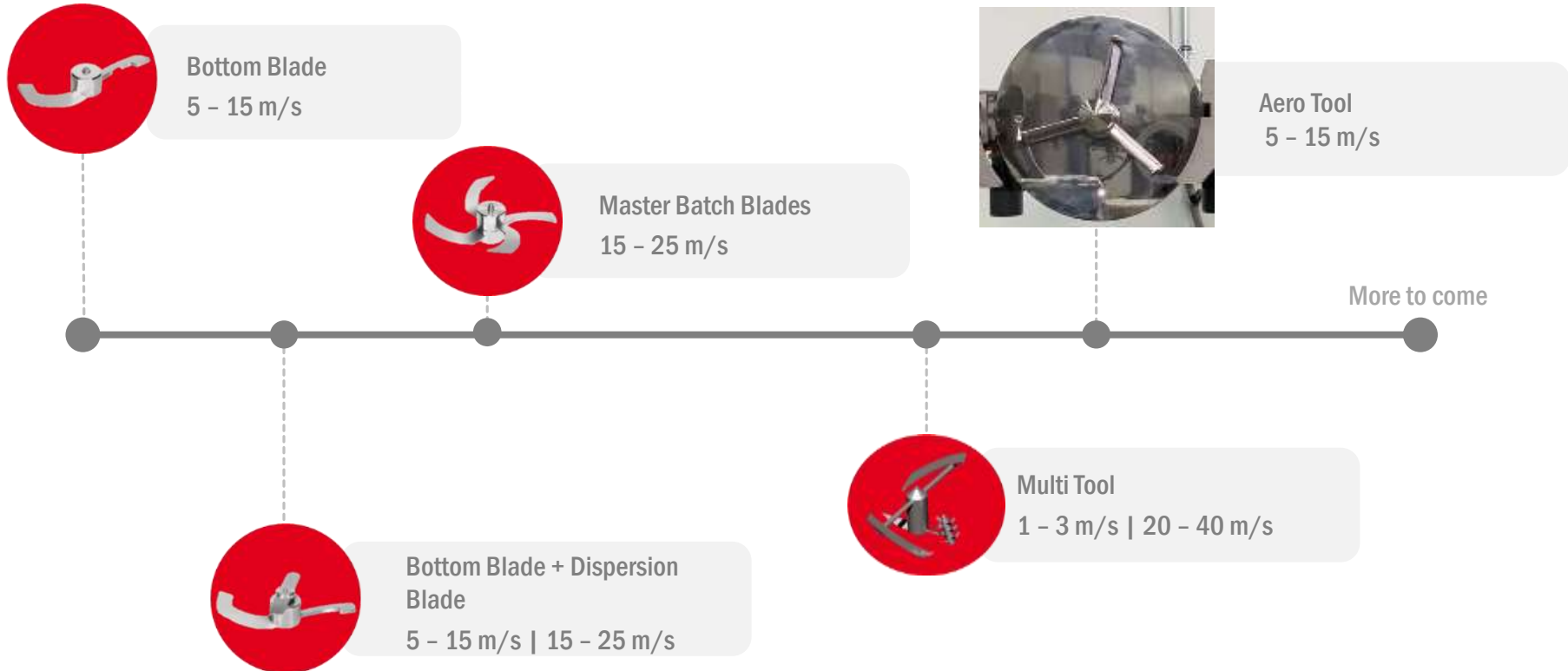
The perfect solution for various applications and applications with a lot of recipe changes



# A Timeline of the Container Mixer

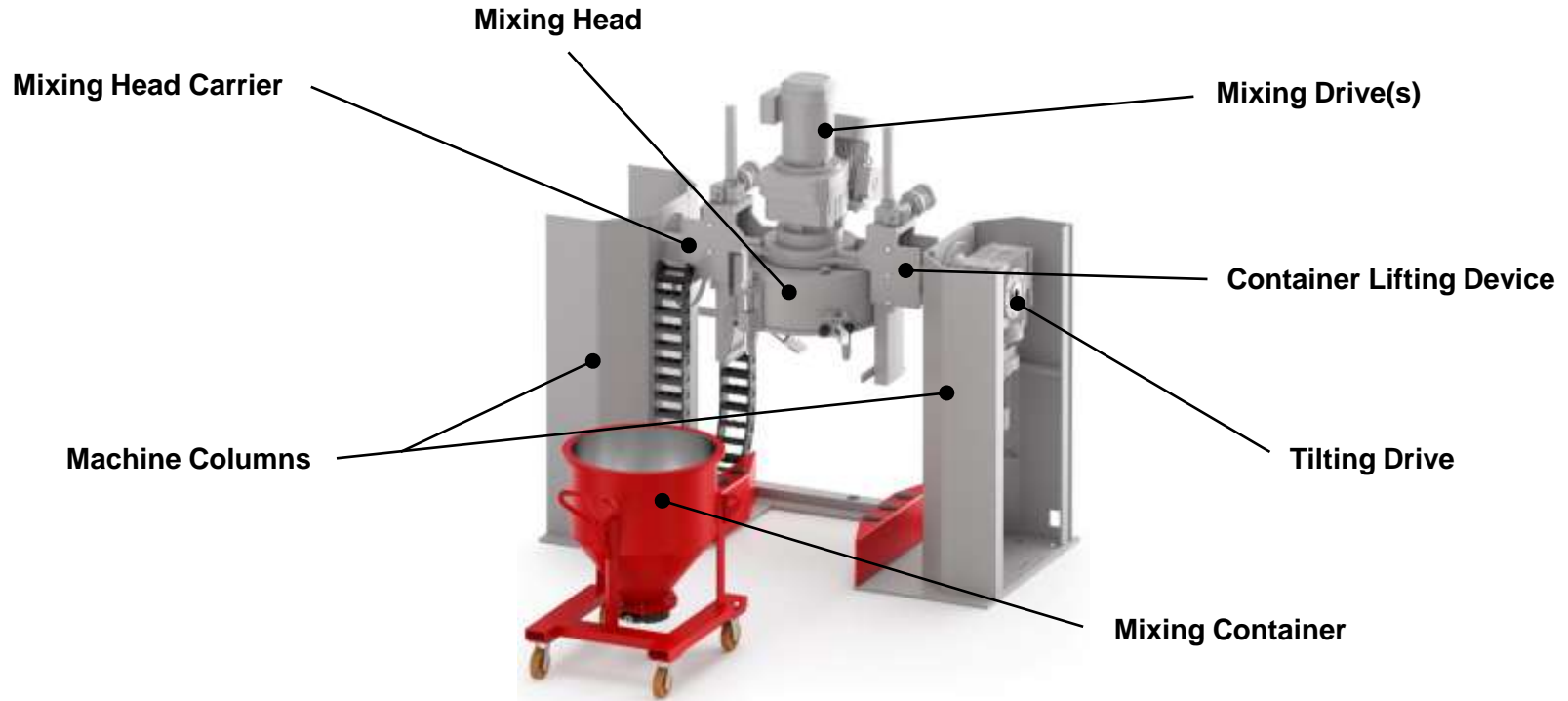


# A Timeline of the Container Mixer Blade Innovation



# Container Mixer

## Overview



# Container Mixer

 Basic Position



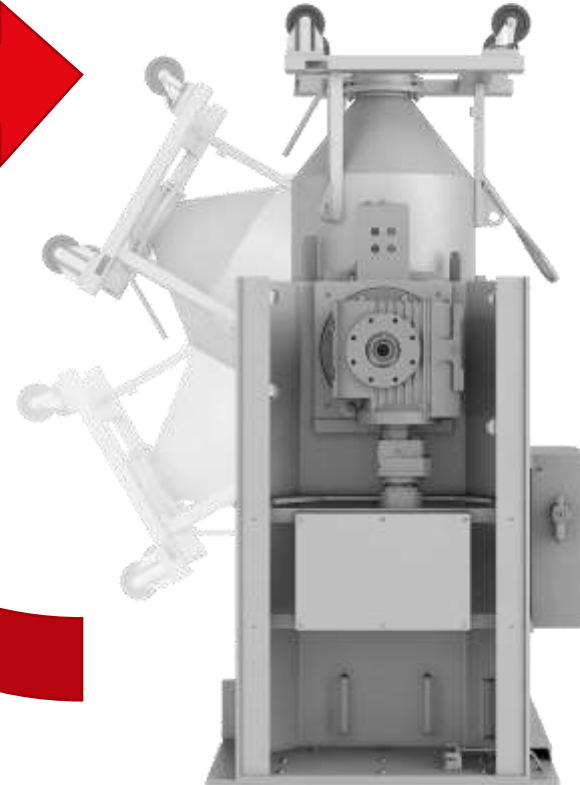
 Mixing Position



 Cleaning Position



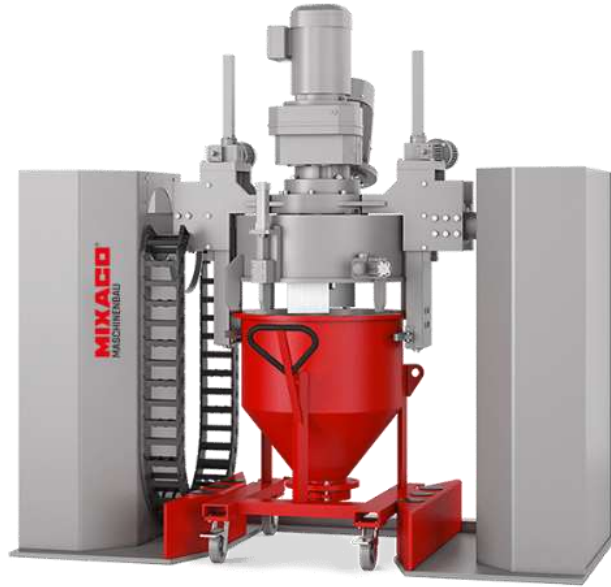
Function



Tilting process  
by 180 ° side  
view




# Multi Tool Type Container Mixer for Powder Coating Applications (Type 1 of 2 to be reviewed)

The Multi Tool Type Container Mixer was designed for the careful mixing of temperature-sensitive materials. An innovative mixing concept with new tools and a special process enables mixing with a minimal material temperature increase.



- ✓ Homogenization
- ✓ Dispersion



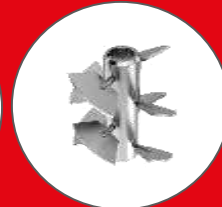
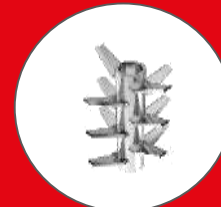
 <p><b>99%</b></p>	 <p><b>100%</b></p>	 <p><b>100%</b></p>
<p><b>USED FOR POWDER COATING</b></p>	<p><b>COVERAGE OF RECIPES</b></p>	<p><b>STATE OF THE ART MIXING TECHNOLOGY</b></p>

**Tool Options:**

**Conveying Tool**



**Auxiliary Tool(s)**





# Multi Tool Type - Video



# Mixing Examples Multi Tool Type Type Container Mixer



MIXACO  
02.2010-01.01

10:06:19

Vers. 4.7.11

Datensatznummer: 1

AS	Dauer [s]	Temp [°C]	Strom [A]	W [0/1]	M1 [U/min]	Winkel [°]	T [%]	Ende [0/1]
1	180	0,0	0	0	220	0	0	1
2	0	0,0	0	0	0	0	0	0
3	0	0,0	0	0	0	0	0	0
4	0	0,0	0	0	0	0	0	0
5	0	0,0	0	0	0	0	0	0
6	0	0,0	0	0	0	0	0	0

TOUCH

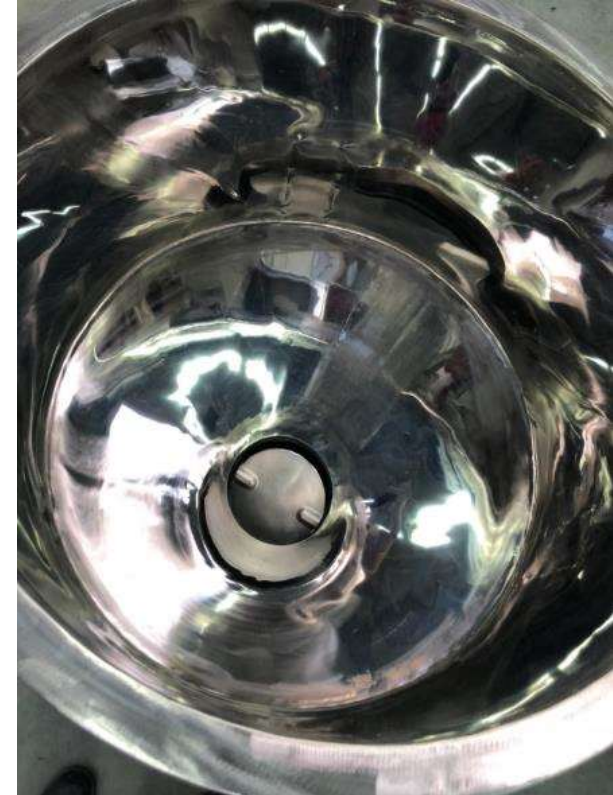
Bildinhaltsverzeichnis Betriebsart Meldungen

# Premixing Powder Coatings

## Multi Tool Type Container Mixer



Tools and mixing head before mixing



Container before mixing

# Premixing Powder Coatings

Violet Powder Coating Blend - Mixed in a Multi Tool Type Container Mixer



**Premixed Material**



**Post Mixed Material**



**Short cleaning times (< 5 minutes)**

# Premixing Powder Coatings

Blue Powder Coating Blend - Mixed in a Multi Tool Type Container Mixer



# Premixing Powder Coatings

Low Melting Epoxy Resin Blend - Mixed in a Multi Tool Type Container Mixer



**Premixed Material**



**Post Mixed Material**



**Short cleaning times (< 5 minutes)**

# Premixing Powder Coatings

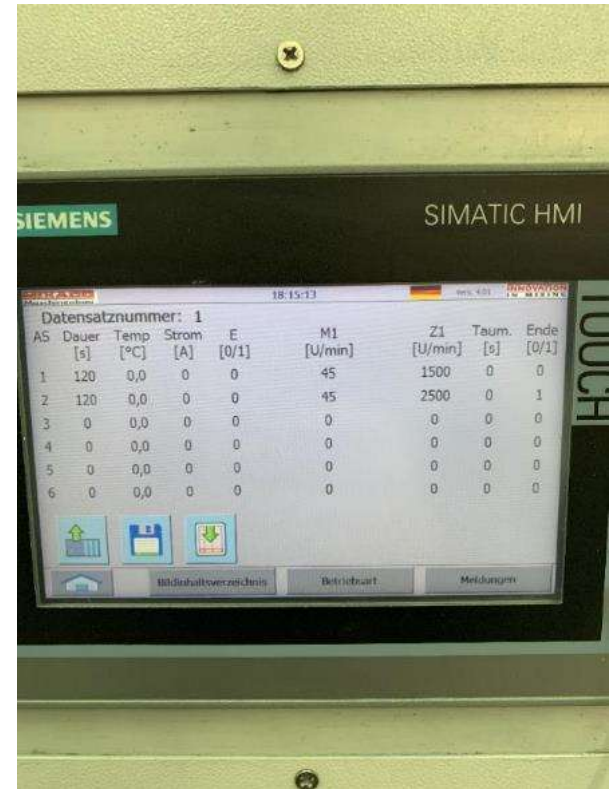
Fine Structure, Polyester Blend - Mixed in a Multi Tool Type Container Mixer



Premixed Material



Post Mixed Material



Short mixing time (4 minutes)

# Premixing Powder Coatings

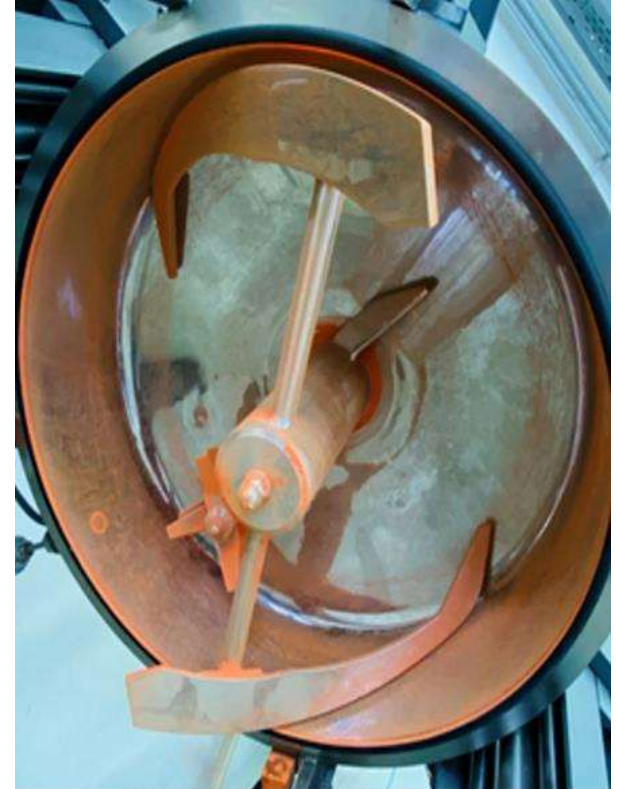
## Red Powder Coating Blend - Mixed in a Multi Tool Type Container Mixer



Premixed Material



Minimal Temperature Increase



Very clean mixing head and tools



# Premixing Powder Coatings

Yellow Powder Coating Blend - Mixed in a Multi Tool Type Container Mixer



# Premixing Powder Coatings

Green Powder Coating Blend - Mixed in a Multi Tool Type Container Mixer



# Premixing Powder Coatings

## Orange Powder Coating Blend - Mixed in a Multi Tool Type Container Mixer

Note: this blend is used for temperature measurement tests and comparison



Post Mixed Material



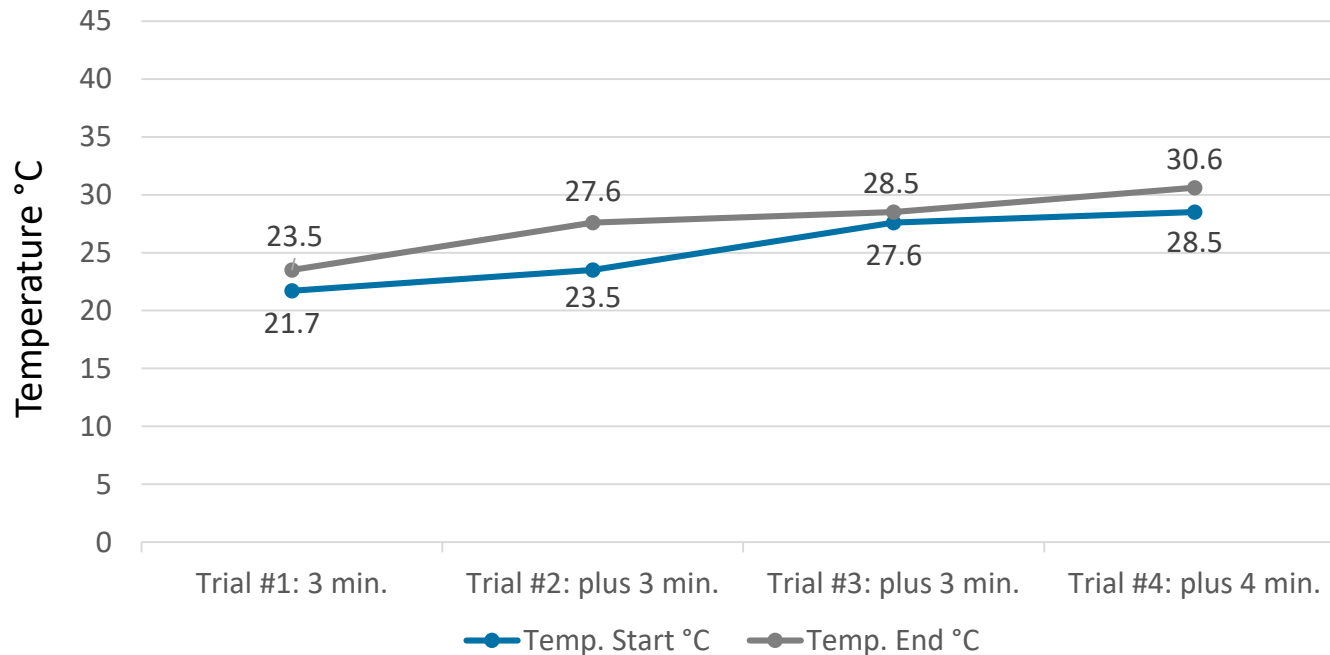
Container after mixing



Easy to clean: scratches done only with fingers!

# Premixing Powder Coatings

Orange Powder Coating Blend - Mixed in a Multi Tool Type Container Mixer  
 Mixing Trial Temperature Increase



## High mixing quality

... using Multi Tool mixing technology



## Easy ATEX/Ex-Proof

... no nitrogen purge required

## No temperature increase

... no Vortex – less energy – no temperature



## Individual tool configuration

... from gentle homogenization to high dispersion

More color and  
higher flexibility.

## Short cleaning times

... colder material is less sticky



## Low energy consumption

... through innovative designs & tools

## Adjustable particle sizes

... adjustable tip speeds of mixing tools



## Tailor-made solutions

... individual tests and mixing procedures

# Flat Head Type Container Mixer for Powder Coating Applications (Type 2 of 2 to be reviewed)

The Flat Head Type Container Mixer is new design, introduced to the significantly reduce cleaning times and offers machine availability and efficiency. Using one machine for three different container sizes is a great option when a maximum of flexibility is the key factor in production.



- ✓ Homogenization
- ✓ Dispersion



## Minimum Cleaning Time

- Flat mixing head
- One mixing blade with simple design + one seal
- Cleaning with mounted mixing blade
- No container guides
- Dust-protected machine components



## Maximum Flexibility

- 3 Container sizes in 1 mixer possible (optional)
- Usage of existing containers
- Fast mixing cycles
- Fastest recipe changes

# Mixing Examples Flat Head Type - Video



# Mixing Examples Flat Head Type Container Mixer



MIXACO  
10:06:19  
Vers. 4.7.0

Datensatznummer: 1

AS	Dauer [s]	Temp [°C]	Strom [A]	W [0/1]	M1 [U/min]	Winkel [°]	T [%]	Ende [0/1]
1	180	0,0	0	0	220	0	0	1
2	0	0,0	0	0	0	0	0	0
3	0	0,0	0	0	0	0	0	0
4	0	0,0	0	0	0	0	0	0
5	0	0,0	0	0	0	0	0	0
6	0	0,0	0	0	0	0	0	0

TOUCH

Bildinhaltsverzeichnis Betriebsart Meldungen



# Premixing Powder Coatings

## Flat Head Type Container Mixer



Tools and mixing head before mixing



Container before mixing

# Premixing Powder Coatings

Light Blue Powder Coating Blend - Mixed in a Flat Head Type Container Mixer



Premixed Material



Post Mixed Material



Short cleaning times, < 5 minutes

# Premixing Powder Coatings

Light Blue Powder Coating Blend - Mixed in a Flat Head Type Container Mixer



# Premixing Powder Coatings

## Orange Powder Coating Blend - Mixed in a Flat Head Type Container Mixer

Note: this blend is used for temperature measurement tests and comparison



**Premixed Material**



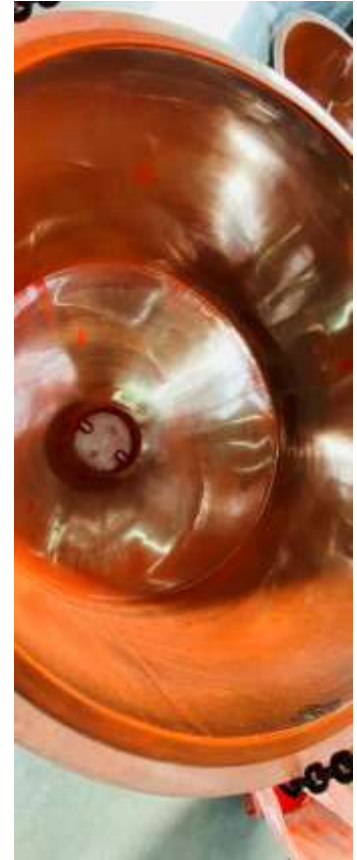
**Post Mixed Material**



**Mixing head after mixing (5 minutes)**

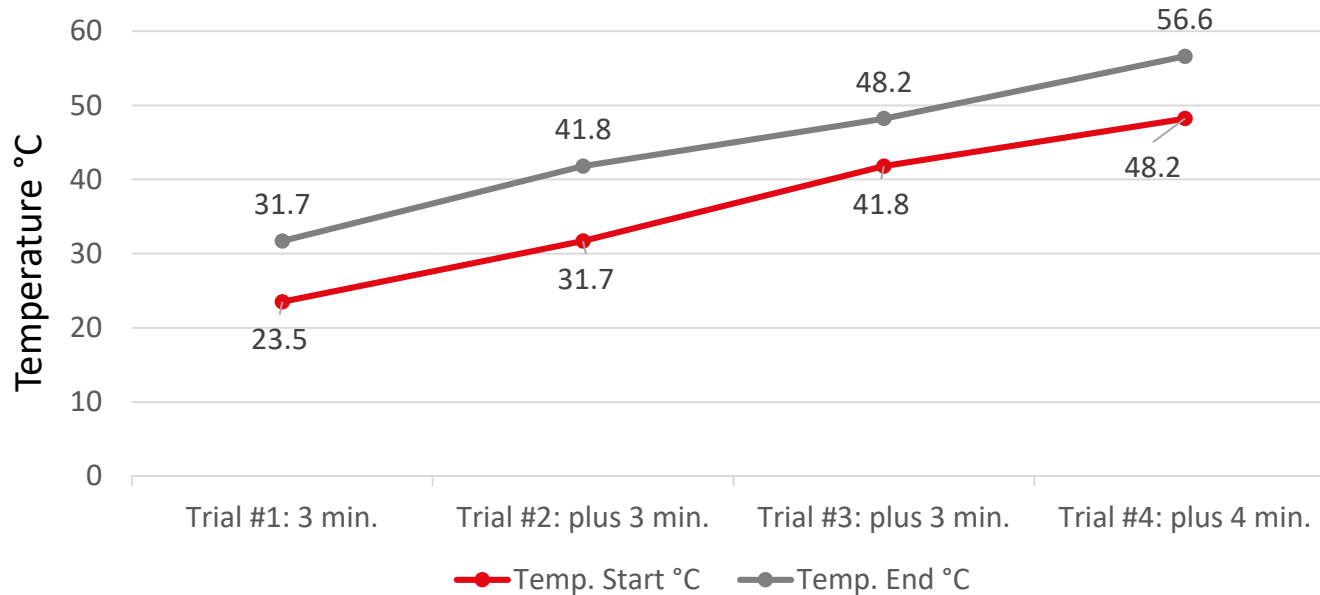
# Premixing Powder Coatings

Orange Powder Coating Blend - Mixed in a Flat Head Type Container Mixer



# Premixing Powder Coatings

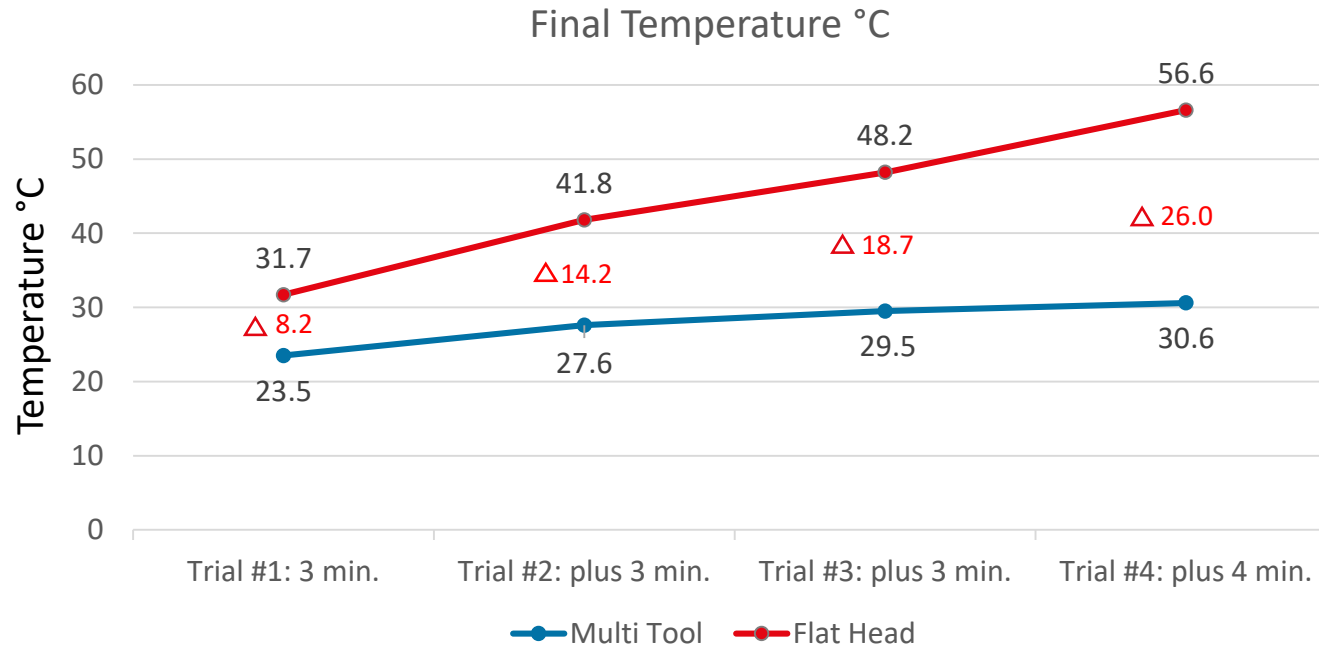
Orange Powder Coating Blend - Mixed in a Flat Head Type Container Mixer  
 Mixing Trial Temperature Increase



# Premixing Powder Coatings

## Orange Powder Coating Blends

### Mixing Trial Temperature Increase – Multi Tool & Flat Head Types Comparison



# Mixing Trials Evaluation

## Facts from the Powder Coating Mixing Trials

- In general, minimal mixing time required, with mixing completed in only 3 - 5 minutes
- No heavy caking and no excess build up of material
- Both mixers are very easy to clean
- Temperature increase in Multi Tool Type is minimal: 0.6 - 1.8 °C per minute
- Temperature increase in Flat Head Type is higher: 3.0 - 3.9 °C per minute
- Adjustment of particle size only possible on Multi-tool Type design

## Recommendation

The Multi Tool Type is the preferable choice of the Powder Coating industry because:

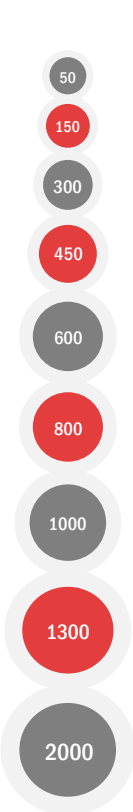
- Much lower temperature increase
- Higher flexibility in terms of adjustable particle size and color outcome
- Optimal material quality due to color intensity



# Container Mixers

## Sizes & Options

Typical Sizes
CM 50
CM 150
CM 300
CM 450
CM 600
CM 800
CM 1000
CM 1300
CM 2000



### Charging Station

The charging station is used for dust free filling of the mixing container with raw materials.



### Discharge Station

The discharge stations are used for dust free emptying of the product into the downstream equipment.



### ATEX/Ex-Proof

Filling level monitoring system. No nitrogen necessary.

### Charging Table with scale



# Thanks for your attention!

Please contact us for a no cost material mixing trial



Greer SC (USA) / Neuenrade (Germany)



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