

NETZSCH

Proven Excellence.



PMH/PML Planetary Mixing & Kneading Machine

Always the Right Spin!

CHEMICAL INDUSTRY

| a Business Field of
NETZSCH Grinding & Dispersing

Planetary Mixing and Kneading Machine

The NETZSCH-planetary mixing and kneading machines are always used for processing viscous or pasty products with high viscosities and especially temperature sensitive products. Even finely pulverized and facile components can be dispersed in liquids at optimal distribution and degrees of fineness.

The Function Principle

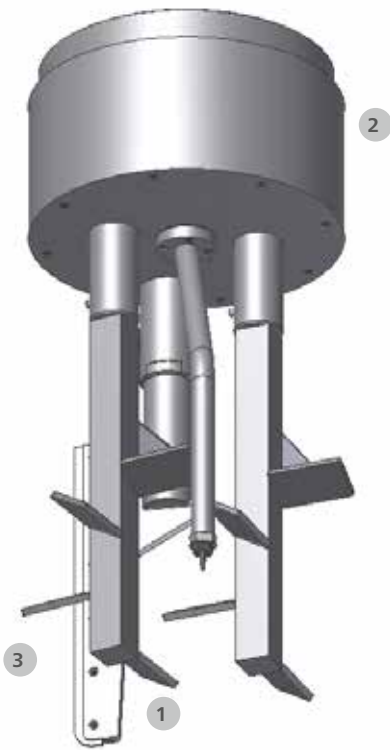
- NETZSCH-mixing and kneading machines operate according to the planetary system
- The self rotating mixing components (1) are used to make a rotary movement (2) in a stationary tank and pass through the entire mixing product
- The product is discharged by a moving scraper (up 500 liters two scraper) (3) into the zones with high mixing and kneading intensity



The Machine Series

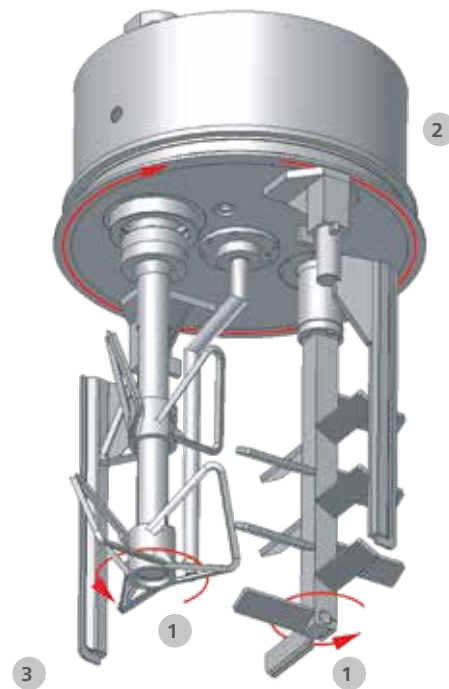
PML (Planetary mixer low speed)

- Two slow running mixing tools e.g. flow blade stirrer are directly driven via a planetary system
- The optimal overlapping of the mixing tools enables efficient and gentle mixing
- Viscosity range from 10 Pas to 3 000 Pas
- Infinitely adjustable speed for optimal adjustment to the product
- Machine sizes from 1 l to 1 600 l tank volume



PMH (Planetary mixer high speed)

- A second, separately driven high-speed dispersing disk is additionally available to the slow speed flow blade stirrer
- The combination of the mixing tools in connection with one or several scrapers provide 100% mixing of materials in the product chamber
- Viscosity range from 1 Pas to < 10 000 Pas
- Infinitely adjustable speeds
- Machine sizes from 1 l to 1 600 l tank volume



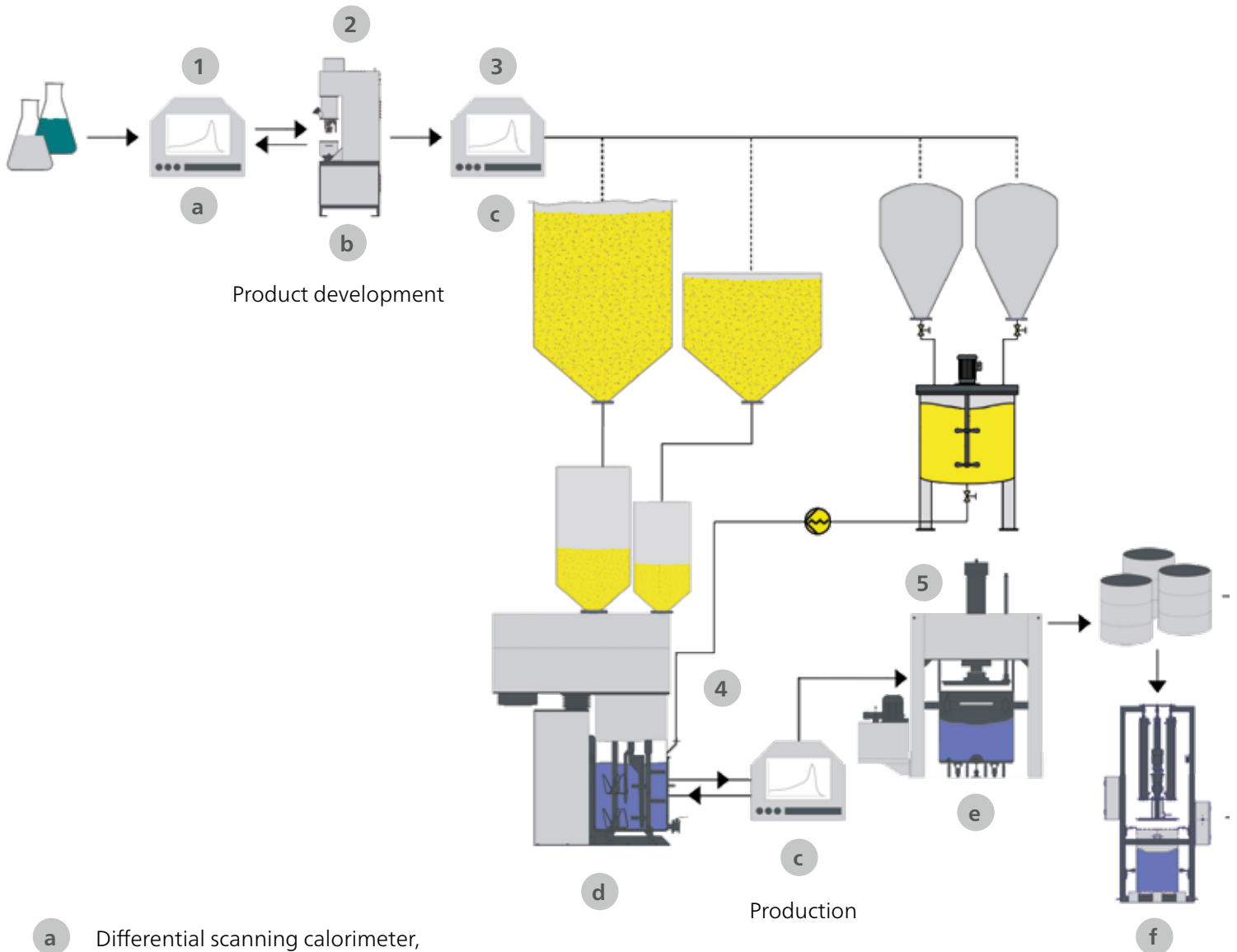
Reduce Production Times by up to 50%

The dosing of solid components starts automatically after a short mixing time. The closed process inhibits the formation of dust, especially in the processing of low-density solids. The finished adhesive and sealant is then conveyed to the filling station with the tank press-out and is filled into the packaging of your choice. A distinguishing characteristic of the planetary mixer is its vacuum-tight design, which allows gas venting of the product during the mixing and kneading process. The new generation of NETZSCH planetary mixer with optimized stirring elements shortens production times by up to 50% as compared with conventional planetary mixers – and at a consistently high quality level.



Fully automated, vacuum-tight
for sanitary silicone planetary
mixer system, model PMH 1000

Professional Solutions for Your Process



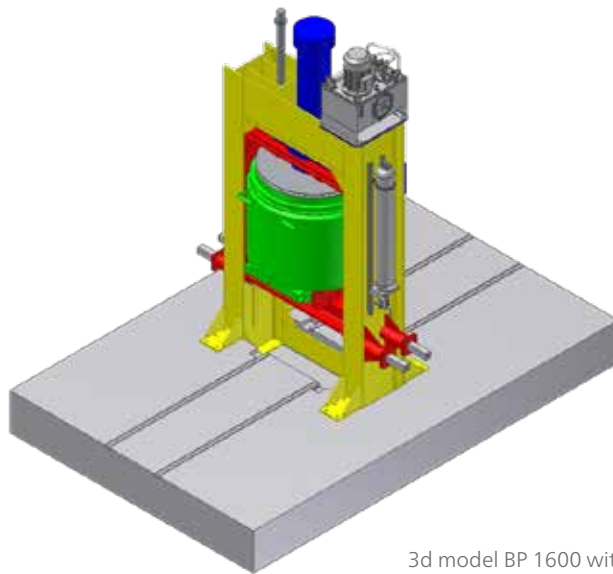
- a** Differential scanning calorimeter, dielectric analyzer, thermobalance
- b** Laboratory planetary mixer
- c** Differential scanning calorimeter, thermobalance, dielectric analyzer, thermomechanical analyzer, dynamic-mechanical analyzer, laser flash apparatus
- d** Planetary mixer
- e** Press-out unit
- f** Barrel discharger

Tank Press-Out System BP

NETZSCH-Feinmahltechnik GmbH has the perfect complement to planetary mixing and kneading machines.

For tank sizes ranging from 40 l to 2000 l the suitable tank press-out is available. Tank press-out systems are used for discharging medium to high-viscosity products and represent a special completion of our mixing and kneading machine series.

In the models PML / PMH 10 - 18 the tank press-out system is a standard feature and already included in the machine stand. The tank press-out system is also available with a vacuum hood.



3d model BP 1600 with
lifting devise





Tank pres-out
BP 90 with lifting devise



Tank pres-out
BP 1600 with lifting devise

Your Advantages

- Fully automatic plant and process
- Control system
- Up to 50% shorter production
- Times at constant product quality
- Reproducible sequences due to exactly controllable drive units
- Direct measurement of the product temperatures up to 200°C by rotary thermo probe
- Stable and reliable construction
- High shearing effect even at low speeds
- Good wetting of solids that are difficult to disperse in liquids
- Explosion-proof design
- Vacuum-tight design with
 - Continuous degassing of the product during the mixing and kneading process
 - No dust development due to enclosed process
- Good process temperature control due to
 - Optimized tool geometries
 - Variable speeds
 - Temperature-controlled process tanks
- Easily exchangeable, product optimized mixing and dispersing tools
- A good cleaning is guaranteed by the optional special coating or special surface treatment

Applications

Machine type PML

- Adhesives
- Liquid silicone rubber (LSR) 1-K Silicone pastes
- Sealants
- Synthetic lubricants
- Highly-pigmented paste
- Plasters and putties
- Dental and casting compounds
- Powdery reagents
- Battery compounds (anode and cathode compounds)

Machine type PMH

- 2-K High-quality silicone pastes
- Liquid silicone rubber (LSR)
- PVC pastes (profiles, seals...)
- Rubber and natural rubber pastes
- Dental and casting compounds
- Battery compounds (anode and cathode compounds)
- General pigments that are difficult to disperse in highly viscous products
- Shear-sensitive products



Laboratory Planetary Mixer PMH/PML 1 - 5

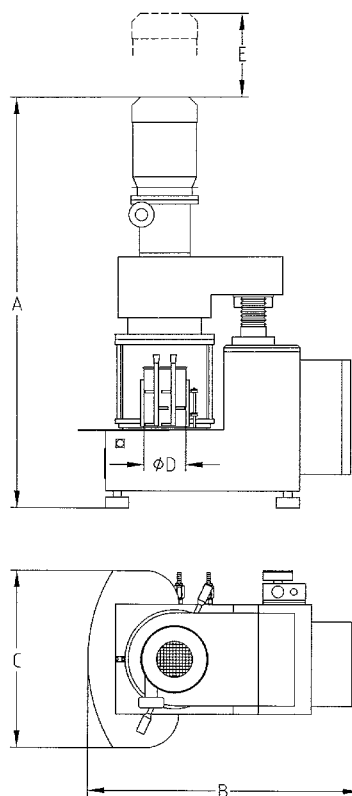
Technical Data PML

Type PMH/PML	Total capacity [l]	Effective volume [%]	Machine size [mm]				
			A	B	C	Tank Ø	E
PMH / L1	1	0.4 - 0.7	1 100	950	420	100	250
PMH / L5	5	1.25 - 3.75	1550	850	500	160	360

- Designed as tabletop model
- Kneading and mixing of small batches of high-viscous products up to 3 000 000 mPas
- Alternatively, conventional tinplate cans can be used as mixing containers
- Several mixing devices
- Possibility of vacuum operation and temperature control of container



Laboratory planetary mixer PMH 1



Machine size PMH 1



Tools

Laboratory Planetary Mixer PMH/PML 10 - 18

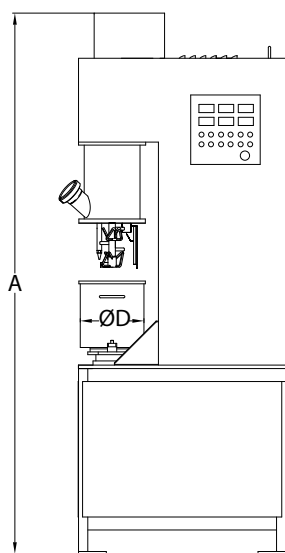
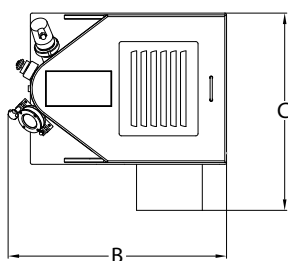
Technical Data PMH

Type PMH/PML	Total- capacity [l]	Effective- volume [%]	Machine size [mm]				
			A	B	C	Tank Ø	E
PMH / L10 *	10	3 - 7	2 150	1 000	900	235	-
PMH / L15 *	15	5 - 12	2 150	1 000	900	270	-
PMH / L18 *	18	6 - 14	2 200	1 000	900	290	-

*) with integrated press out



Tools



Machine size PML/PMH 10 bis 18



Labor planetary mixer PMH 10

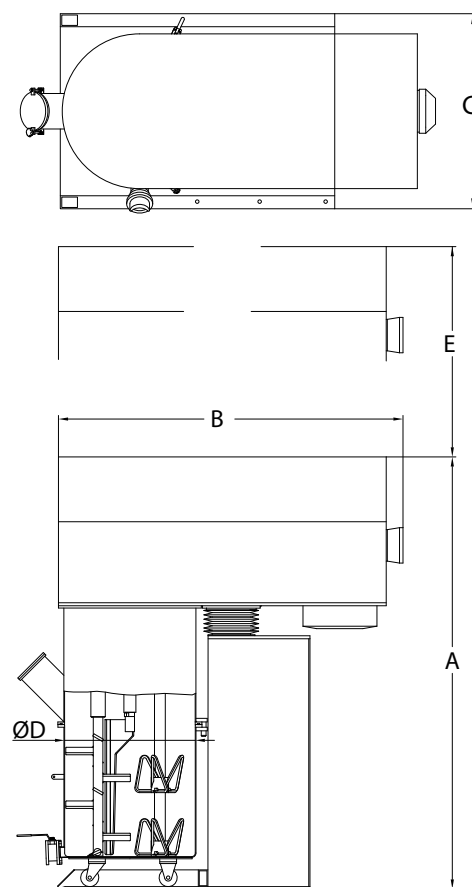
Type PML

Technical Data PML 50 - 1600

Type PML	Total capacity [l]	Effective volume [%]	Machine dimensions [mm]				
			A	B	C	Tank Ø	E
PML 50	50	18 - 38	1 600	1 200	850	400	550
PML 90	90	30 - 70	1 700	1 300	950	490	570
PML 185	185	65 - 140	2 000	1 600	950	635	660
PML 320	320	110 - 250	2 100	2 000	1 400	840	700
PML 600	600	210 - 470	2 300	2 200	1 500	990	1 000
PML 1000	1 000	350 - 775	3 000	2 800	1 600	1 090	1 200
PML 1600	1 600	550 - 1 250	3 700	3 200	1 700	1 380	1 200



PML 600 (Design for dental masses)

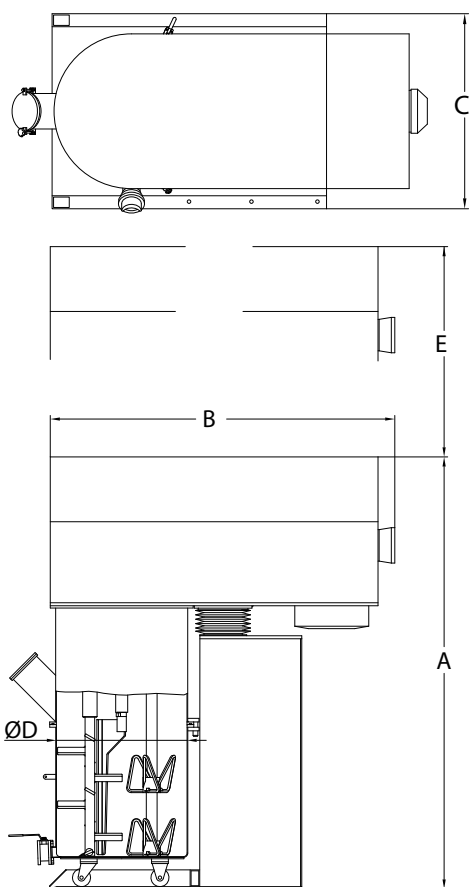


Machine size PML/PMH

Type PMH

Technical Data PMH 50 - 1600

Type PMH	Total capacity [l]	Effective volume [%]	Machine dimensions [mm]				
			A	B	C	Tank Ø	E
PMH 50	50	18 - 38	1900	1600	850	400	550
PMH 90	90	30 - 70	2100	1800	900	490	570
PMH 185	185	65 - 140	2200	1950	950	635	660
PMH 320	320	110 - 250	2400	2400	1400	840	700
PMH 600	600	210 - 470	3000	2700	1500	990	1000
PMH 1000	1000	350 - 775	3500	3100	1600	1090	1200
PMH 1400	1300	425 - 980	3600	3200	1600	1280	1200
PMH 1600	1600	550 - 1250	3700	3600	1700	1380	1200



Machine size PML/PMH

PMH 1400 (Design for LSR)

Plant Concept for the Production of LSR

Planetary mixer PMH 1600 integrated into a fully automated system with tank press-out and filling station.

1 Planetary mixer PMH 1400

- Enhanced design
- Variable speed
- Heatable / coolable tank
- Stainless steel design
- Process control as option
- Vacuum design

2 Tank press out system BP 1400

- Variable press out pressure and press out time
- Tank positioning by tank lifting device as option
- Vacuum design as option
- Sizes from 40 l to 2 000 l tank volume

3 Palette filling

- Semi-automatic filling plant for different viscosities
- To fill of 20 l and 200 l barrels
- Automatic lance follow-up device
- Different sizes





Example system for the production of LSR

Business Unit Grinding & Dispersing – The World's Leading Grinding Technology

NETZSCH-Feinmahltechnik GmbH
Selb, Germany

NETZSCH Trockenmahltechnik GmbH
Hanau, Germany

NETZSCH Vakumix GmbH
Weyhe-Dreye, Germany

NETZSCH Lohnmahltechnik GmbH
Bobingen, Germany

NETZSCH Mastermix Ltd.
Lichfield, Great Britain

NETZSCH FRÈRES S.A.R.L.
Arpajon, France

NETZSCH España, S.A.U.
Terrassa/Barcelona, Spain

ECUTEC S.L.
Barcelona, Spain

Tramega
Terrassa/Barcelona, Spain

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Technologies, LLC.
Exton PA, USA

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Comércio de Equipamentos
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Private Ltd.
Chennai, India

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Tula, Russia

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Ticaret Ltd. Sti.
Izmir, Turkey

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The three Business Units – Analyzing & Testing, Grinding & Dispersing and Pumps & Systems – provide tailored solutions for highest-level needs. Over 3,500 employees at 210 sales and production centers in 35 countries across the globe guarantee that expert service is never far from our customers.

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