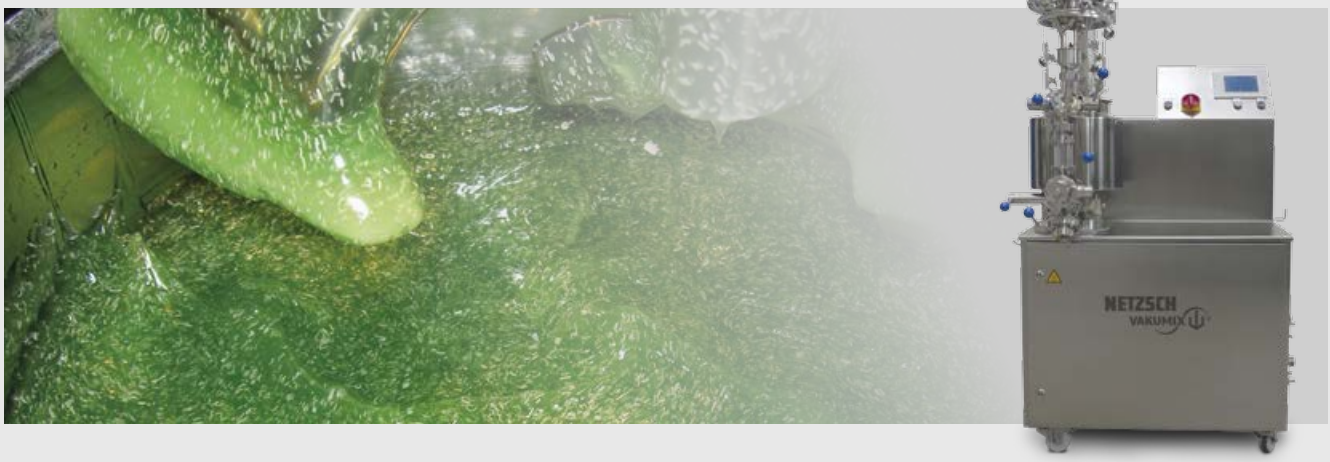
NETZSCH VAKUMIX

Grinding & Dispersing

Investment Security Right from the Start

Scaleable Laboratory Mixers *KappaVita* Type HM 2/5/10



our technology
YOUR SUCCESS

Laboratory Mixers *KappaVita*

Main features

cGMP-compliant Design

- integrated Cleaning-In-Place (CIP)
- Sterilizing-In-Place (SIP) as an Option
- Aseptic Design

Scale-Up to bigger Machines and Production Plants

- Identical Functions of Agitator and Homogenizer
- Identical Tip Speeds
- Identical Heating and Cooling Strategies
- Identical Vessel/Piping/Machine Design as Production Machines
- Batches under Production Conditions
- Optimization of Batch Times

Vessel Design

- Vessel Inside Pressure (-1/+2 bar)
- Heating Jacket Pressure (-1/+6 bar)

Lid Lifting Device

Lid Lock

- Clamp Lock

Materials

- AISI 316L

Anchor Agitator with Flow Breaker and Scrapers

- Automatic Shift of Sense of Rotation
- Vertical Mixture
- Scrapers cleanly working on both Sides
- Optimal Heat Transition
- RPM steplessly variable
- Flow Breaker with integrated Pt 100
- CFD-optimized

4-Rim Design of Homogenizer

- Stepless RPM Control
- Rotor Tip Speeds up to 31m/sec.
- High Shear Rates
- High Energy Input
- Powerful Homogenizer
- Thus Homogenization of high Viscosities up to 400.000 mPas possible
- Water-cooled Motor (low noise Design)
- Homogenizer mounted at the lowest position in the centre of the vessel bottom
- High-Perfomance Homogenization in Circulation

Heating-Cooling Control

- Secondary Circuit with Hot Water Circulation
- Temperature Safety Limit Switch
- Direct Cooling with Water
- Control Strategies such as Temperature Difference or °C/min.
- Service friendly, modular rack design (exchangeable)

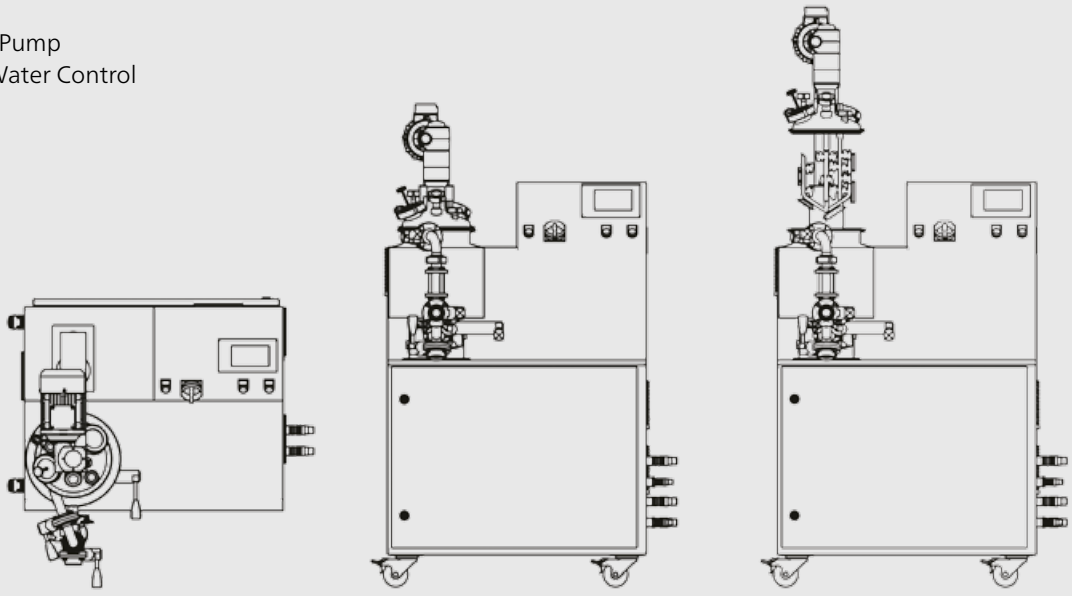
Control and Visualization

- Colour Touch-Panel
- Multilingual Design
- Service Tools
- RPM and Running Time Entries
- Temperature Control
  - Heating – on or hold
  - Cooling – on or hold
- Vacuum draw
- Data Storage by SD-Card

- Integrated Data Recording
  - Entry of Batch No., Product
  - Curves
  - Data Protocol
  - Data Export Function to EXCEL™
- Ideal Logging for ambitious Developments
- Analysis and Reporting via external PCs under Windows™
- Service friendly Access to Switchboard Cabinet

Vacuum System

- Water-Ring Vacuum Pump
- Automatic Cooling Water Control



NETZSCH VAKUMIX®

Technical Data

	Unit	HM 2	HM 5	HM 10
Working Volume	Liter	2	5	10
Volume to Vessel Flange	Liter	2,7	7,3	14
Total Volume	Liter	3,2	8,5	17,2
Permissible Pressure in Vessel Interior	bar	-1/+2	-1/+2	-1/+2
Permissible Pressure in Heating space	bar	+6	+6	+6
Max. perm. Temperature in Vessel Interior	°C	133	133	133
Max. perm. Temperature inside Heating Jacket	°C	140	140	140
Agitator	kW	0,37	0,37	0,5
RPM Agitator-alternating Operation	1/min	20-410	20-410	20-310
Homogenizer	kW	5,5	5,5	5,5
Tip Speed	m/sec	31	31	31
RPM Homogenizer	1/min	500-12000	500-12000	500-12000
Secondary Heating	kW	2	4	6
Heat Medium		Water	Water	Water
Temperature Probe Product	Pt 100	150 °C	150 °C	150 °C
Temperature Probe Circuit	Pt 100	150 °C	150 °C	150 °C
Cooling Water Requirement	m^3/h	0,5	0,6	0,8
Water Requirement Water-Ring Vacuum Pump	m^3/h	0,2	0,2	0,2
Suction Capacity of Vacuum Pump at 100 mbar	m^3/h	2	2	2
Weight of the Machine	kg	285	300	320

Mobile Machine Design

- Independent operation at several Places

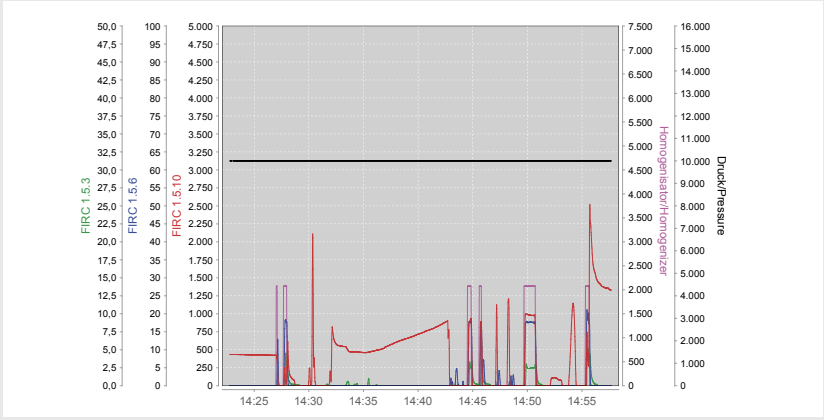
Equipment (Options)

- Dosing Reservoirs
- Suction Valves
- Special Suction Valves for Powder Suction below Liquid Level
- Suction Lances for Liquids
- Suction Lances for Powder
- Powder Suction Funnel
- Vacuum Compensators
- Automated Valves (automatic Operation is possible)
- Hot-Cold-Suction
- Premix Vessel
- Electronic FDA-compliant Recorder
- Conductimetry
- Ph-Probe

Rugged Machine Design (Low Maintenance)

Available as Rental Machine

Tests with your Product are possible in the NETZSCH Vakumix Laboratory at any time.



Time	FIRC 1.5.10	FIRC 1.5.6	FIRC 1.5.3	Homogenizer	Pressure
14:22:47	434.7	0.0	0.0	0.0	10000.0
14:23:17	434.7	0.0	0.0	0.0	10000.0
14:23:47	433.3	0.0	0.0	0.0	10000.0
14:24:17	432.6	0.0	0.0	0.0	10000.0
14:24:47	429.8	0.0	0.0	0.0	10000.0
14:25:17	429.8	0.0	0.0	0.0	10000.0
14:25:47	429.8	0.0	0.0	0.0	10000.0
14:26:17	426.6	0.0	0.0	0.0	10000.0
14:26:47	423.5	0.0	0.0	0.0	10000.0
14:27:17	0.0	0.1	0.0	0.0	10000.0
14:27:47	249.4	13.6	0.0	2076.0	10000.0
14:28:17	138.5	0.0	0.4	0.0	10000.0
14:28:47	0.0	0.0	0.1	0.0	10000.0
14:29:17	0.0	0.0	0.0	0.0	10000.0
14:29:47	0.0	0.0	0.0	0.0	10000.0
14:30:17	422.5	0.0	0.0	0.0	10000.0
14:30:47	0.0	0.0	-0.2	0.0	10000.0
14:31:17	0.0	0.0	-0.1	0.0	10000.0
14:31:47	0.0	0.0	0.0	0.0	10000.0
14:32:17	656.2	0.0	0.0	0.0	10000.0
14:32:47	557.1	0.0	0.0	0.0	10000.0
14:33:17	545.2	0.0	0.0	0.0	10000.0

Actual Values

NETZSCH VAKUMIX

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

NETZSCH-Feinmahltechnik GmbH
Selb, Germany

NETZSCH Lohnmahltechnik GmbH
Bobingen, Germany

NETZSCH Premier Technologies, LLC.
Exton PA, USA

NETZSCH Indústria e Comércio de Equipamentos de Moagem Ltda.
Pomerode, Brazil

NETZSCH Korea Co. Ltd.
Goyang, Korea

NETZSCH-CONDUX Mahltechnik GmbH
Hanau, Germany

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

NETZSCH Mastermix Ltd.
Lichfield, Great Britain

NETZSCH (Shanghai) Machinery and Instruments Co., Ltd.
Shanghai, China

NETZSCH Technologies India Private Ltd.,
Chennai, India

NETZSCH Vakumix GmbH
Weyhe-Dreye, Germany

ZAO NETZSCH Tula
Tula, Russia

NETZSCH Makine Sanayi ve Ticaret Ltd. Sti.
Izmir, Turkey

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M&D · NVM Scale-up-fähige Labor- & Technikumsmischer *KappaVita* · EN · 04/14 · Technical specifications are subject to change.