WHERE LIQUIDS ARE SHAKEN NOT STIRRED

FUNDAMIX®

Agitation by oscillation without rotation

DrM

Pure Process
CARL STUART GROUP

Pure Process
Tel: (01) 4523432
Fax: (01) 4523967
E-mail: info@pureprocess.eu
Web: www.pureprocess.eu

FUNDAMIX® – GOOD VIBRATIONS

The FUNDAMIX® is a sophisticated mixing device where the mixing effect is generated by high frequency vibration created by an electromagnetic drive. The vibration is transferred through the length of a shaft to a perforated mixing plate with conical bores. The oscillation of the plate causes the liquid to be pumped through the conical holes, creating a flow according to the Bernoulli effect.

The vertical mixing effect generates fast, homogenous product dispersion without a vortex and if needed, without surface movement. This effectively reduces foam formation using type B mixer plate.
Alternatively, an extremely strong surface movement can be achieved in applications with light or even floating materials using type A mixer plate.

The key advantages of the FUNDAMIX® are low shear force, the absence of rotating parts (no mechanical seal needed), very low power consumption, low maintenance costs, a simplified tank design (no baffles and no vortex breakers are required), as well as high reliability and a long life span.

FUNDAMIX® is equipped with a simple membrane sealing unit that is perfectly suited for sterile environments thanks to the absence of friction and the ease of CIP/SIP. It can be used for pressures from full vacuum up to 5 bar g or even higher upon request.

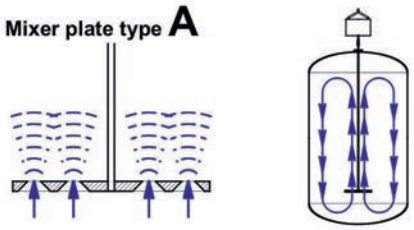
FUNDAMIX® mixers are available for installation in ATEX Zone 1 or with a special sealing unit allowing Zone 0 inside the vessel. If needed, an amplitude control system with a piezo sensor allows for measurement and adjustment of the amplitude to 0.1 mm accuracy.

FUNCTION PRINCIPLE OF THE MIXING DEVICE

Depending on the orientation of the conical bores, two different mixing types are available:

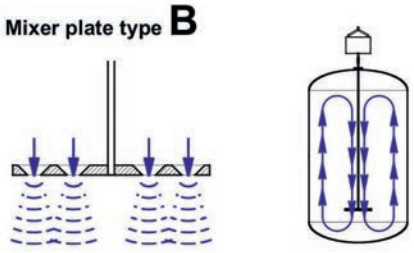
MIXER PLATE TYPE A

Type A with the conical bores facing upwards is the preferred standard. Type A has higher efficiency due to upward flow through the whole vessel.
The plate can be mounted very low, so the mixable heel volume is reduced to a minimum.



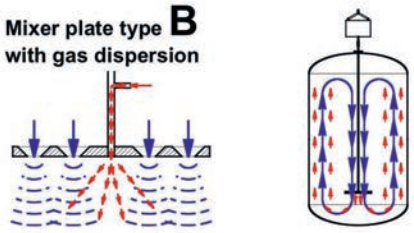
MIXER PLATE TYPE B

Mixer type B with the conical bores facing downwards is chosen if the product tends to sediment, creates foaming or if no air is to be introduced during mixing.
The distance to the bottom of the vessel is about the diameter of the plate.



MIXER PLATE TYPE B WITH GAS DISPERSION

If gas is required then it can be injected through the shaft with mixer plate type B. The liquid flows downwards distributing the fine gas bubbles in the vessel generating an excellent gas dispersion.
Another well proven set up is to inject the gas between two plates to break the bubbles.



FUNDAMIX®, ADVANTAGES OF NON-ROTATIONAL MIXING

MAIN CHARACTERISTICS OF THE FUNDAMIX®

- No rotating parts
- No vortex
- No friction
- No mechanical seal
- Simple installation
- Long service life
- Effective & efficient mixing
- Low shear force

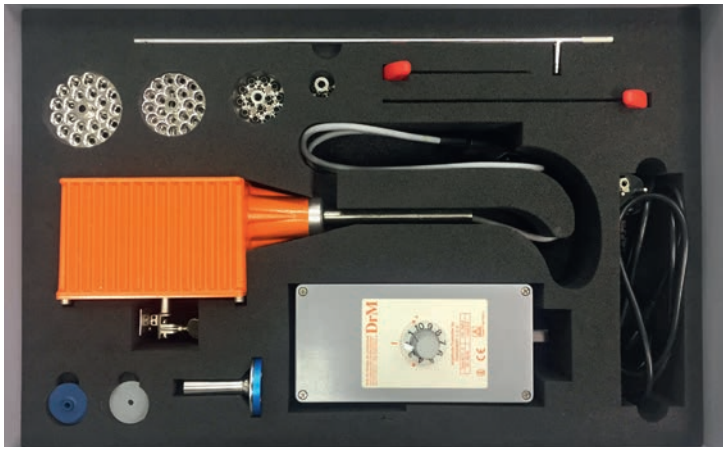
Size FM-2 Mixer with Control Cabinet

KEY ADVANTAGES

- Reduced residual liquid volume due to low positioning of the plate
- No baffles required
- No lubricants required
- Perfectly suitable for CIP/SIP
- Low installation cost
- High degree of containment suitable for pathogens and demanding applications
- Low maintenance cost
- Low energy consumption
- No damaging of life cells

FUNDAMIX® SCALE UP FROM THE LAB TO PRODUCTION

Every new application is developed in the lab. Our lab sets are equipped with various plates and all necessary accessories are available off the shelf and can be rented.
Our experienced engineers can assist for testing and the scale up from the lab to the pilot plant and into the production environment. DrM with it's worldwide network and partners offers a variety of services from simple design studies to turn key solutions.


Laboratory set (fully equipped)

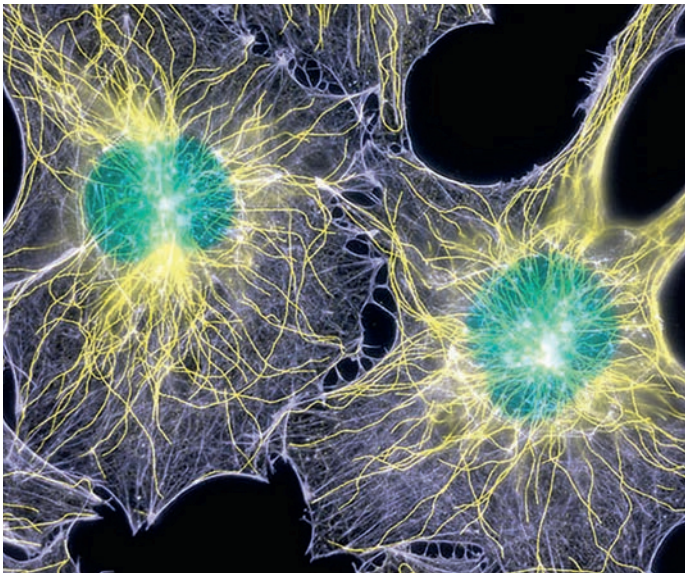

FM-4+ Production unit

APPLICATIONS

PHARMACEUTICAL & COSMETIC INDUSTRIES

Insulin production, blood fractionation preparation of sterile solutions, mixing of injectable suspensions in sterile vessels for ampoule filling, vaccine / oil emulsions, etc.

MICROBIOLOGICAL & BIOCHEMICAL INDUSTRIES



Anaerobic/Aerobic fermentations, submerse culture of mammalian, human and plant cells, protein solutions, etc.

CHEMICAL INDUSTRY

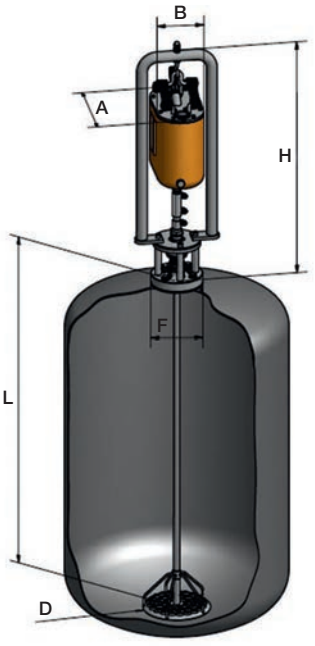
Suspending of solids such as filter aid, activated carbon or bentonite in liquids, precipitation or crystallization of solids during neutralization, gas /liquid batch reactions like hydrogenations and chlorinations, fluidization of solids, etc.

FOOD & BEVERAGE INDUSTRIES

Mixing of soft drinks, addition of flavors, salt, sugar, vitamins and dyestuff, blending alcoholic beverages, agitation of milk, etc.

FUNDAMIX® DATA

Model	FM-1	FM-2	FM-3	FM-3+	FM-4	FM-4+	FM-5
Mixing Volume [L]	1 – 10	10 – 200	50 – 1 000	300 – 2 000	1 000 – 10 000	6 000 – 12 000	8 000 – 40 000
Max. Pump capacity (water) [L/min.]	60	340	1100	1500	3400	4500	5400
Max. Pump capacity (water) [m3/h]	3.6	20	66	90	204	270	324
Electrical Data							
Voltage [V]	110 – 230	110 – 230	110 – 230	110 – 230	400 – 480	400 – 480	400 – 480
Frequency [Hz]	50 – 60	50 – 60	50 – 60	50 – 60	approx. 25	approx. 25	approx. 25
Power Consumption [W]	34	180	200	330	450	510	750
Parameters							
Pressure [bar g]	-1 / 5	-1 / 5	-1 / 5	-1 / 5	-1 / 5	-1 / 5	-1 / 5
Note: With various executions of membrane sealing units, different or higher pressure ratings are available.							
Temp. [°C]	-4 / +150	-4 / +150	-4 / +150	-4 / +150	-4 / +150	-4 / +150	-4 / +150
Note: Lower and higher temperatures available upon request.							
Protection class	IP65	IP65	IP65	IP65	IP65	IP65	IP65
ATEX Protection class (optional)	Ex II 2G Ex e IIC T4	Ex II 2G Ex e IIC T4	Ex II 2G Ex e IIC T4	Ex II 2G Ex e IIC T4	Ex II 2G Ex e IIC T4	Ex II 2G Ex e IIC T4	N/A
Conformity	CE / EMV	CE / EMV	CE / EMV	CE / EMV	CE / EMV	CE / EMV	N/A
Dimensional Data							
A [mm]	200	260	270	270	450	450	450
B [mm]	100	120	150	150	280	280	340
D [mm]	25 – 65	145	215	300	395	475	550
F [mm]	50	140	165	165	265	265	265
H [mm]	300	800	850	850	1200	1250	1350
Important Note: The height (Dimension H) can be significantly reduced with a frame suspension system.							
L [mm]	max. 600	max. 1500	max. 2200	max. 2600	max. 4000	max. 4500	max. 5000
Weight (drive unit) [kg]	3	12	25	28	115	140	220



DrM HEADQUARTERS

HEADQUARTERS

Switzerland
DrM, Dr. Mueller AG Alte Landstrasse 415 8708 Maennedorf Switzerland

Tel. +41 44 921 2121 Fax +41 44 921 2131

mailbox@drm.ch
www.drm.ch

UID: CHE-108.042.787

Pure Process
CARL STUART GROUP

Pure Process
Tel: (01) 4523432
Fax: (01) 4523967
E-mail: info@pureprocess.eu
Web: www.pureprocess.eu