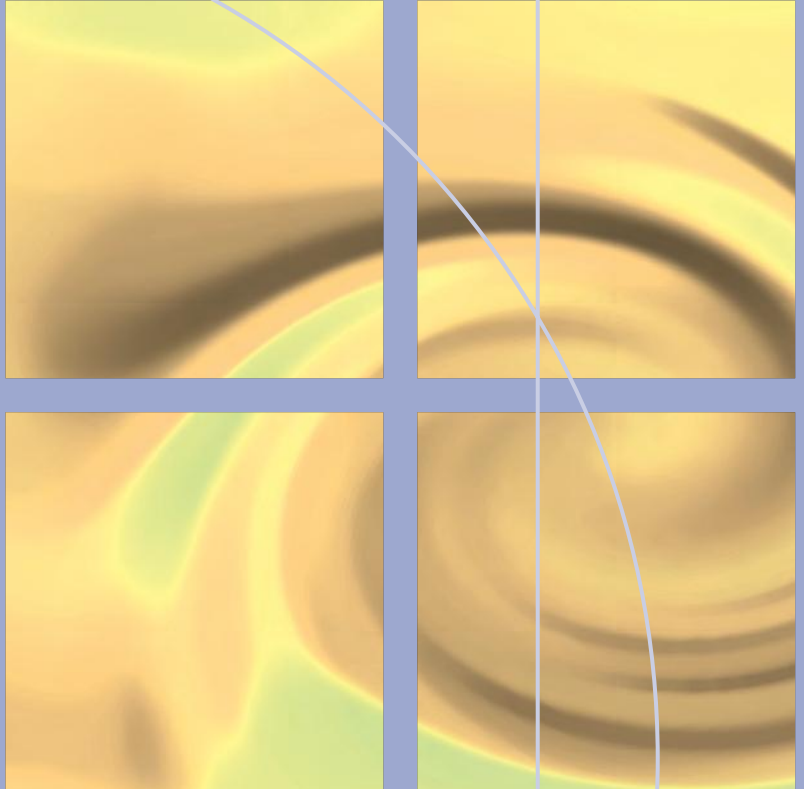
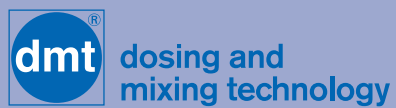


BIS E.M.S. GmbH



Loop Mixer



02

dmt
loop mixer for
universal mixing
tasks

Effective and reliable „mixing“

The actual value of a product is created by the mixing process. The mixer therefore has an important position in your overall system. Mixing is therefore the key process in your production.

dmt Loop mixers produced by **BIS E.M.S. GmbH** are process engineering systems, developed and patented for the mixing of continuous volume flows of a product consisting of several components. Intensive product mixing with simultaneous gentle product handling and excellent product homogeneity, as the result of the mixing process are the outstanding properties of the **dmt** loop mixer.

Small space requirements and low running costs are further powerful arguments for using this mixer.

The systems provide maximum microbiological safety thanks to their enclosed design.

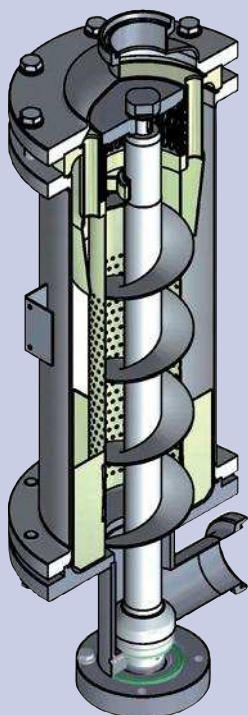


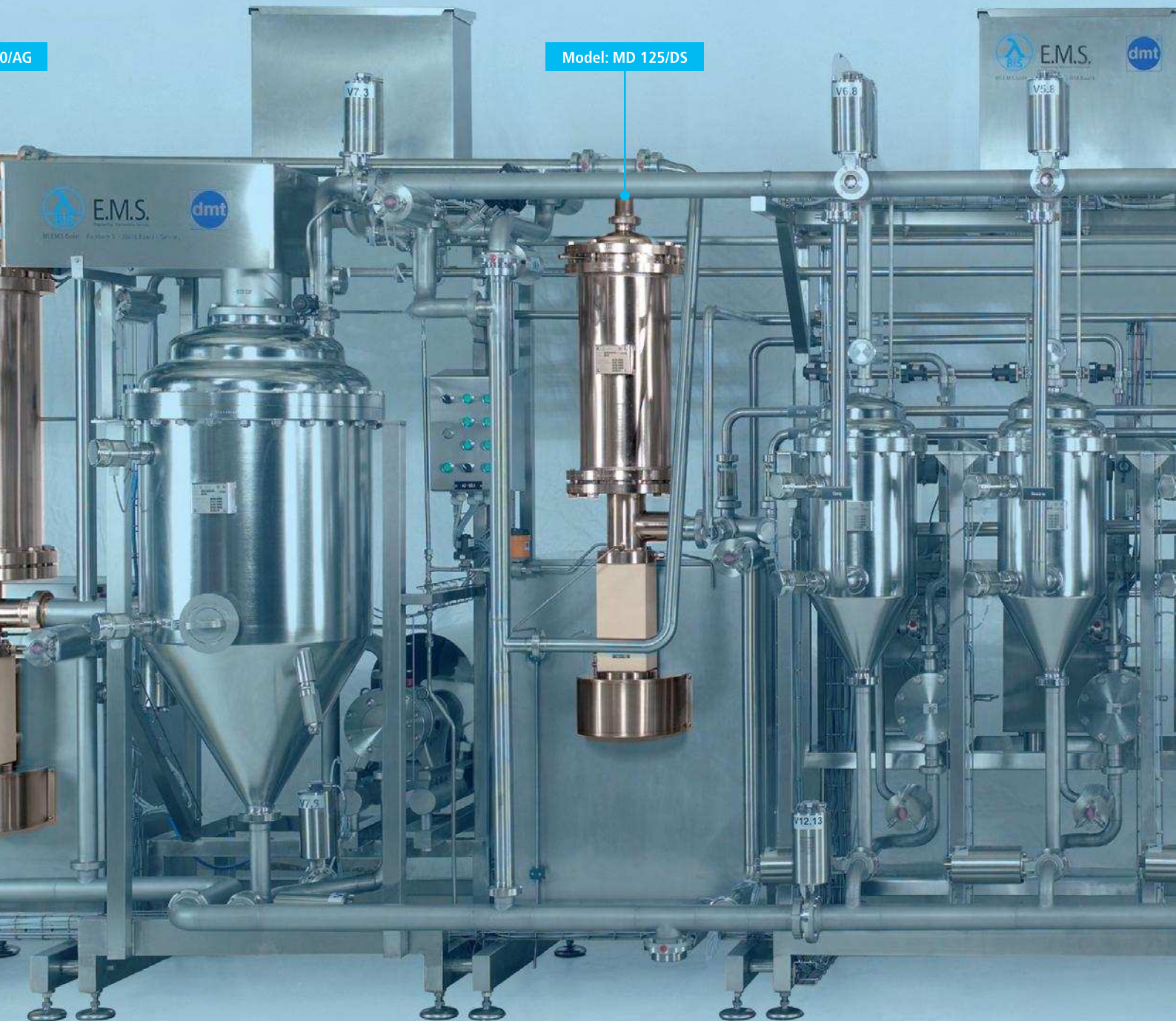
Fig.:
Dynamic
loop mixer



Applications:

The **dmt** loop mixer is optimally suited to the following basic mechanical and thermal processes:

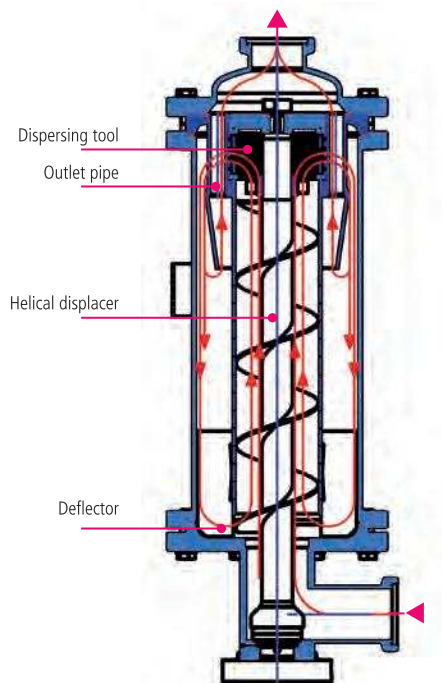
- Mixing
- Emulsifying
- Dispersing
- Suspension preparation
- Homogenizing
- Foaming / Whisking
- Dissolving
- Temperature holding cold / warm



dmt loop mixers are used for continuously working in-line production processes in applications and process engineering. Use of this innovative mixing technology opens up new prospects for economic design of continuously working manufacturing processes. This mixer's versatility significantly reduces the investment risk. It enables easy changeover to other mixing tasks. By simply replacing the dispersing tools, the **dmt** loop mixer is immediately equipped for new tasks. Therefore, in many cases, product changes in response to market requirements do not necessitate the purchase of a new mixer.

Fig.:
Two dynamic loop mixers integrated in a production facility,
made by **BIS E.M.S. GmbH**

Design and function of the dynamic loop mixer



Dynamic loop mixer - MD series

Dynamic loop mixers are used for mixing low-viscosity to high-viscosity products. The mixing and circulation energy required is provided by a variable-speed helical displacer, whose upper shaft end can be fitted with various dispersing tools. The design of the dispersing tools depends on the required mixing result.

Inside the mixer the product is thoroughly mixed by mechanically guided, continuous recirculation (loop formation).

The product chamber is hermetically sealed by a special flushed mechanical seal.

The product mixture exits the mixer via the outlet pipes of the central-symmetrical collector.

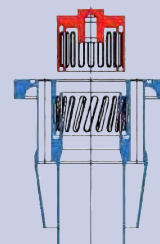
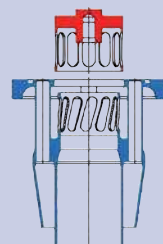
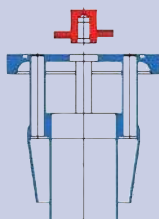
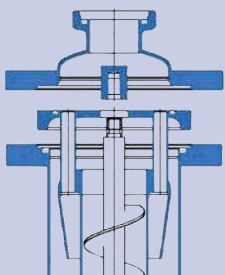
Dispersing tool / Stator system MD

Tool-less system
for gentle, structure-
protecting mixing
System: WO

Blade type rotor/stator
for mixing particulate
ingredients
System: AG

Single rotor/stator
for foaming
tasks
System: SS

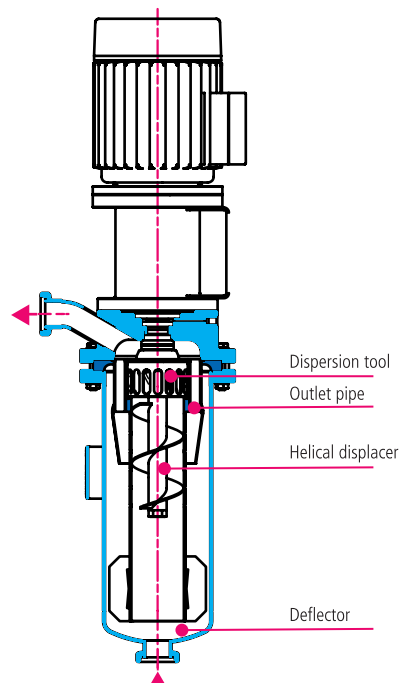
Double rotor/stator
for emulsions
tasks
System: DS



Model: MD 200/DS

Dynamic loop mixer - MD series

Mixer Model	Nominal volume [l]	Max. flow rate [m³/h] at typical retention time [seconds]				
		15 sec	30 sec	45 sec	60 sec	120 sec
MD 050	1,6	0,384	0,192	0,128	0,096	0,048
MD 080	6,4	1,536	0,768	0,512	0,384	0,192
MD 100	12,5	3,000	1,500	1,000	0,750	0,375
MD 125	25,0	6,000	3,000	2,000	1,500	0,750
MD 160	50,0	12,000	6,000	4,000	3,000	1,500
MD 200	100,0	24,000	12,000	8,000	6,000	3,000
MD 250	200,0	48,000	24,000	16,000	12,000	6,000
MD 320	400,0	96,000	48,000	32,000	24,000	12,000



Dynamic loop mixer - MDL series for simple mixing tasks

The dynamic loop mixer is designed for low shear forces, even with constantly circulating mixer contents. Its large outlet openings enable particulate ingredients with particle sizes from 15 to 20 mm edge length to be used. It is therefore ideally suited for use in the dairy and food industries, e.g. for manufacturing mixed milk products with pieces of fruit, flavouring, colouring, fermenting, etc.

Flow rate and retention time:

The achievable mixer flow rate depends on the retention time required for a specific mixing task. The retention time is the length of time the material particles stay in the mixer.

It is calculated from the quotient of the mixer volume and flow rate (see table). The optimum retention time for the respective mixing task is determined in practical trials and depends on the specific product properties of the mixing parameters.

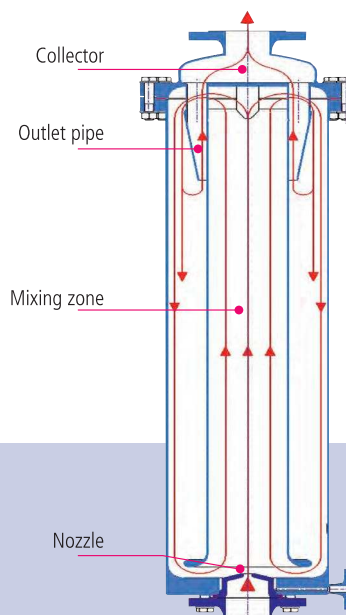
Dynamic loop mixer - MDL series

Mixer Model	Nominal volume [l]	Max. flow rate [m³/h] at typical retention time [seconds]				
		15 sec	30 sec	45 sec	60 sec	120 sec
MDL 080	10,0	2,400	1,200	0,800	0,600	0,300
MDL 100	20,0	4,800	2,400	1,600	1,200	0,600
MDL 125	40,0	9,600	4,800	3,200	2,400	1,200
MDL 160	80,0	19,200	9,600	6,400	4,800	2,400



Model: MDL 080/SS

Design and function of the static loop mixer



Static loop mixer - MS series

Static loop mixers are used to mix continuous volume flows of low-viscosity products. The mixing energy is provided by an external energy source (e.g. pump). The materials to be mixed enter the mixing zone through a nozzle specially adapted to the product properties. There the products are thoroughly mixed by mechanically guided, continuous recirculation. New material is constantly added through the jet nozzle and mixed with the circulating product. The mixture exits the static loop mixer via the outlet pipes of the central-symmetrical collector.

Extreme uses with temperatures up to 500°C and pressures up to 1.000 bar can be realised.

The characteristic features of static loop mixers are their low power input, with efficient mixing of the product and therefore low running costs.

Various products with different phases can also be mixed with each other via appropriate upstream reactors.



Static loop mixer - MS series

Mixer Model	Nominal volume [l]	Max. flow rate [m³/h] at typical retention time [seconds]				
		15 sec	30 sec	45 sec	60 sec	120 sec
MS 25	0,4	0,096	0,048	0,032	0,024	0,012
MS 32	0,8	0,192	0,096	0,064	0,048	0,024
MS 40	1,6	0,384	0,192	0,128	0,096	0,048
MS 50	3,2	0,768	0,384	0,265	0,192	0,096
MS 64	6,4	1,536	0,768	0,512	0,384	0,192
MS 80	12,5	3,00	1,50	1,00	0,75	0,375
MS 100	25,0	6,00	3,00	2,00	1,50	0,75
MS 125	50,0	12,00	6,00	4,00	3,00	1,50
MS 160	100,0	24,00	12,00	8,00	6,00	3,00
MS 200	200,0	48,00	24,00	16,00	12,00	6,00
MS 250	400,0	96,00	48,00	32,00	24,00	12,00
MS 320	800,0	192,00	96,00	64,00	48,00	24,00

Advice, Service, Spare parts all from a single source

07

Advice
Service
Spare parts

A high-quality product is one thing. But who takes care of instructing your personnel, the start-up and regular maintenance of the loop mixer?

BIS E.M.S. GmbH offers its customers competent and professional service, training and fast delivery of spare and wearing parts and accessories.

ADVANTAGES at a glance

- Compact, enclosed design
- Preferably for continuous operation
- Uniform retention time range and maximum possible mix quality
- Directed, calculable flow field (reliable SCALE-UP)
- Optimum utilisation of the energy input for the mixing process
- Shortened mixing time, maximum rate at minimum mixing time
- Mixing in completely filled mixing chamber, no air intake
- High flexibility in application due to exchangeable mixing tools
- Further uses from structure-protecting mixing to emulsifying
- Hygienic design
- All product-carrying parts made of stainless steel
- Also suitable for use of particulate ingredients
- Completely CIP compatible without dismantling

Technical information

Cleaning:

All dmt loop mixers can be cleaned according to the CIP (Cleaning In Place) method, without dismantling. Depending on the seal material used, they can be sterilised by steam at up to 140°C.

Materials:

Standard model

Parts in contact with product made of stainless steel

Material: 1.4571

Seals made of Viton or user-specific materials

Mechanical seals made of SiC/SiC

Media inlet:

Application-based jet nozzles or upstream reactors, including for several product components

Connection types:

All standard connections are available, e.g. flange to DIN 11851, SMS, IDF, etc.

Heating, cooling:

All mixers can be optionally supplied with heating and cooling jackets.

Steam insert ring:

The MD series is optionally available with a steam insert made of PTFE for direct steam heating.

Special designs:

Loop mixers on request

Preliminary trials / rental machines:

If you wish, we can perform preliminary trials for product development in our customer test laboratory. In addition, it is possible to provide rental machines for trials on your premises.

Certifications

- DIN EN ISO 9001
- SCC**
- Containers according to Directive for Pressurized-Vessels 97/23/EC available as option
- Material test certificates 3.1 EN 10204, available as option
- Specialized enterprise according to §19I German WHG
- Spillage trays according to "Bauregelliste A", part 1, no. 15.22

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