

INDAG

Maschinenbau GmbH

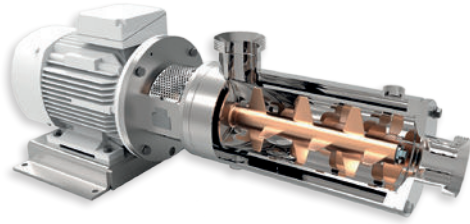
The FlowMix[®]-Company



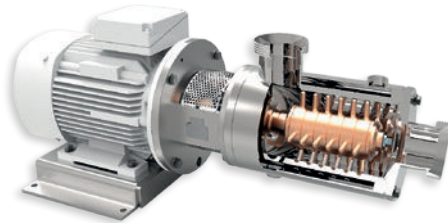
Homogenizer Type DLM/H

Emulsifying, dispersing and shearing

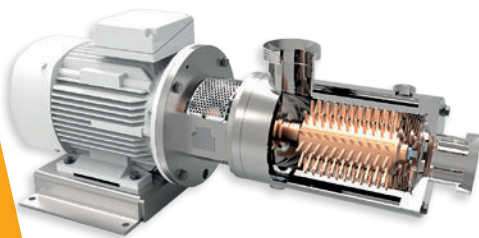
Mixer type DLM/M



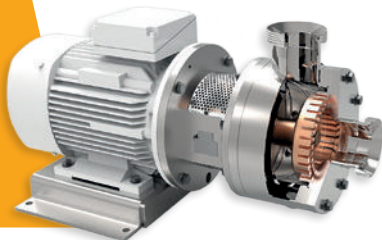
Mixer type DLM/P



Mixer type DLM/S



Mixer type DLM/H



Shear Rate



+

■ Function and application of DLM/H

INDAG homogenizer type DLM/H is used for effective emulsifying, dispersing, shearing and mixing of fluids and solids. Applications are: for production of cosmetics oil, water and emulsifier are combined to stable emulsion. DLM/H produces mayonnaise from oil, vinegar solution and egg. Drop-let sizes of smaller 1 µm are achieved by rotor tip speeds of >20 m/s and smallest clearance. Another application is mixing of phosphoric acid or citric acid into vegetable oil for degumming. With DLM/H homogenizer solids in liquids like onion pieces or corn pieces are sheared to very small pieces.

■ Technology of DLM/H

INDAG homogenizer type DLM/H consists of a rotor and stator equipped with axial positioned mixing/shearing elements. Mixing energy is introduced efficiently into product. It is possible (as an option) to heat or cool stator. INDAG mixer DLM/H is designed in a modular way. DLM/H is offered in a compact design (KB) and a foundation plate design (LB). Compact design means that rotor is supported by drive shaft of motor. Foundation plate design means that rotor is supported by its own bearing block. An own bearing block allows smaller clearance between rotor and stator mixing elements and therefore even more intensive shearing effect. Homogenizer DLM/H with own bearing block can be equipped with every commercially available motor. DLM/H can be equipped with single acting mechanical seal or double acting mechanical seal.

Positioning

Horizontal or vertical position of mixer is possible

Pressure levels

6 bar, 10 bar, 16 bar, 25 bar, 40 bar

Materials

1.4301 (AISI 304), 1.4404 (AISI 316 L)

Seals

Single acting mechanical seal;
double acting mechanical seal;
even in aseptic execution

Connections

Dairy connections according to DIN 11851, DIN 11864,
Tri Clamp, SMS

Rotational speed

1,500 rpm to 6,000 rpm

Capacities

50 l/h to 120,000 l/h

Temperatures

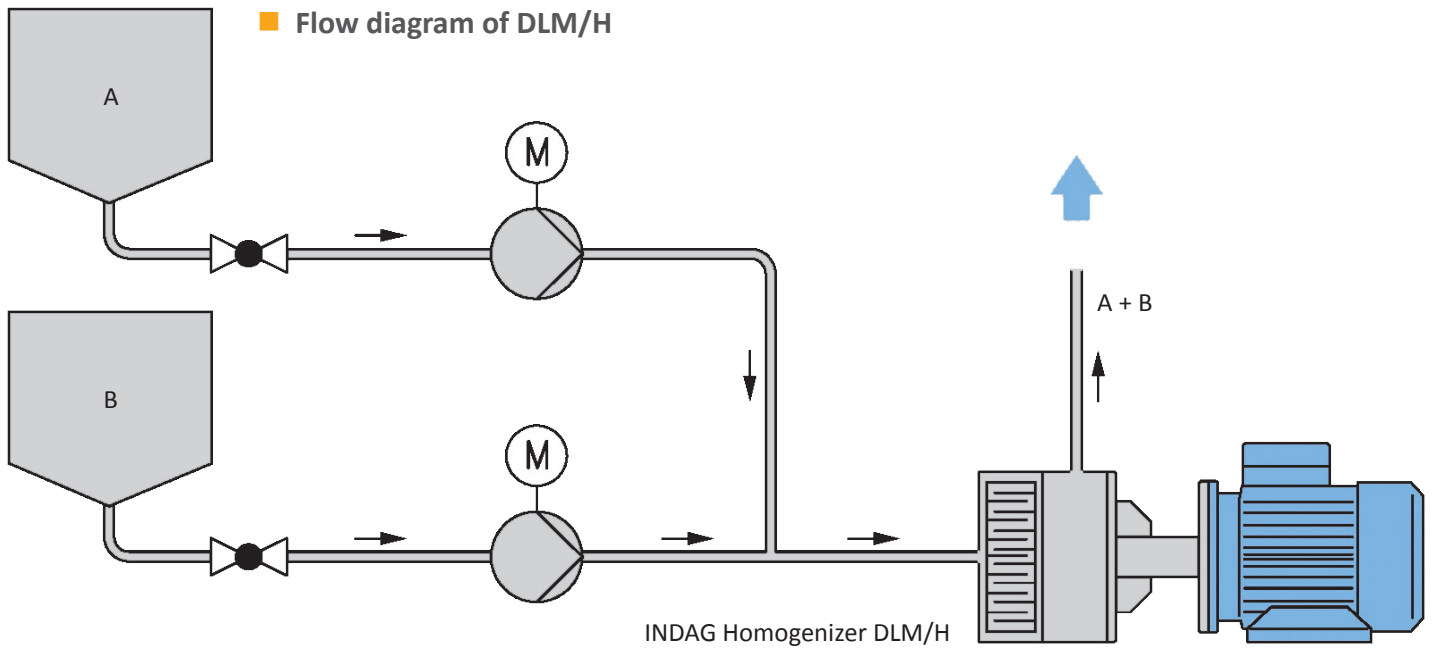
0 °C to 200 °C

Viscosities

1 mPas to 500,000 mPas

■ Advantages of DLM/H

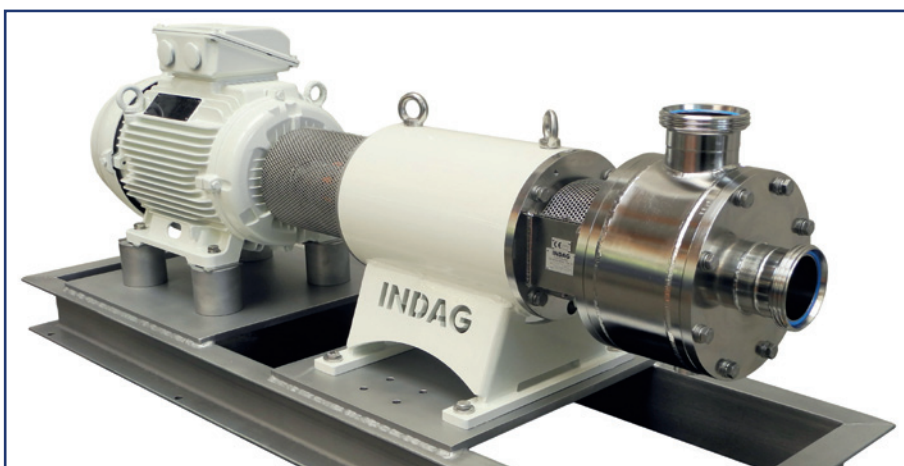
- Very good self-cleaning during CIP-cleaning
- Efficient introduction of mixing energy
- Modular design of homogenizer
- Hygienic design
- Execution with double jacket and further connections possible



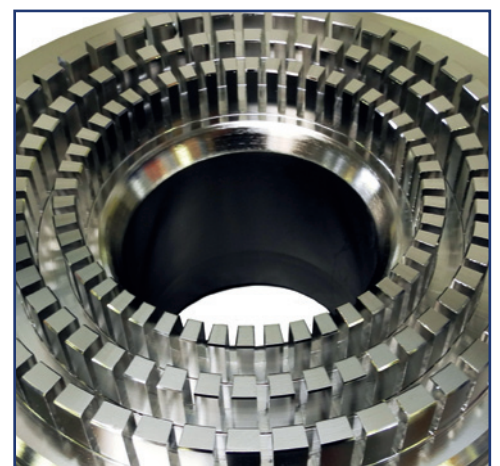
■ Mixer sizes and capacities of DLM/H

Type DLM/H ... HY**	unit	2	3	4	5
capacity*	l/h	50-6,000	500-30,000	2,000-55,000	5,000-120,000
connection	DN	25-50	50-65	80-100	100-125
optional	ASME	1-2"	2"-2½"	3"-4"	4"-5"
power	kW	2.2-4.0	4-11	11-22	37.5-75
rotational speed	1/min	1,000-6,000	1,000-5,000	1,000-3,000	1,000-3,000
mixing stages compact version	2	DLM/H-202 KB	DLM/H-302 KB	DLM/H-402 KB	DLM/H-502 KB
mixing stages bearing block version	3		DLM/H-303 LB	DLM/H-403 LB	DLM/H-503 LB

*Capacity depends on product. ** Type designation HY = food execution has been left out within the table.

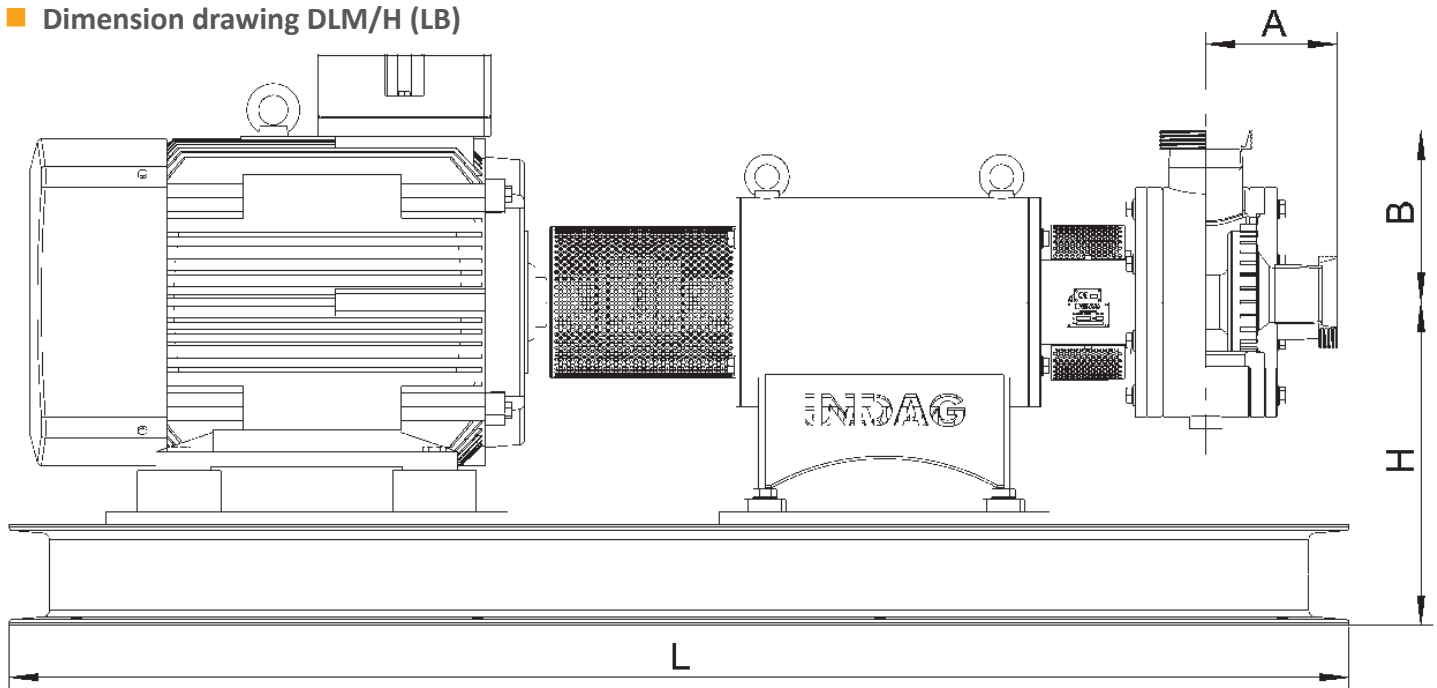


INDAG homogenizer Type DLM/H-303 (LB)

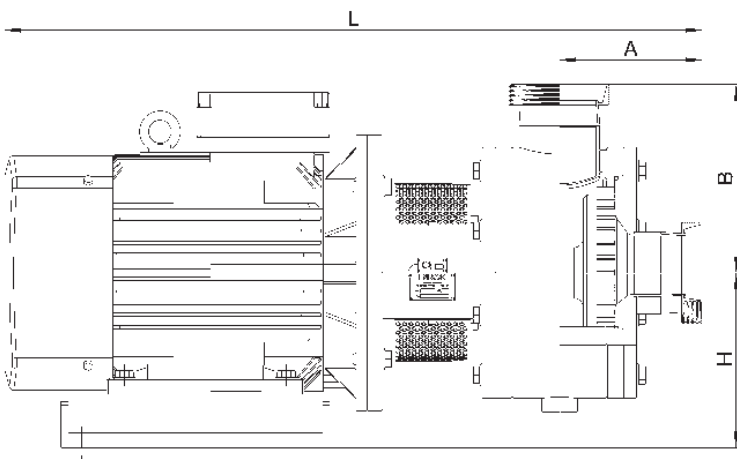


Stator mixing elements three-stages

■ Dimension drawing DLM/H (LB)



■ Dimension drawing DLM/H (KB)



■ Dimension table of DLM/H

Type	unit	A	B	H*	L*
DLM/H-202 KB	mm	101	155	170	580
DLM/H-302 KB	mm	147	175	190	755
DLM/H-402 KB	mm	157	205	190	822
DLM/H-502 KB	mm	193	244	238	990
DLM/H-202 LB	mm	101	155	250	1200
DLM/H-303 LB	mm	147	175	312	1500
DLM/H-403 LB	mm	157	205	385	1600
DLM/H-503 LB	mm	193	244	460	1800

* depends on the drive

Company profile

For over 60 years INDAG develops, designs and produces dynamical inline mixers and complete metering and mixing systems in Borsfleth, Germany.

INDAG products claim to meet highest requirements in quality and efficiency.

Product and service spectrum

Product spectrum includes: dynamic inline mixer type DLM/M, intensive inline mixer type DLM/P, intensive inline mixer type DLM/S, homogenizer type DLM/H, solid-liquid mixer type DLM/FS, complete systems type FlowMix for metering, mixing and aerating. Complete systems are equipped with PLC control and sensors for automatic and monitored production. Service spectrum includes commissioning and maintenance of mixers and complete systems.



INDAG

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