



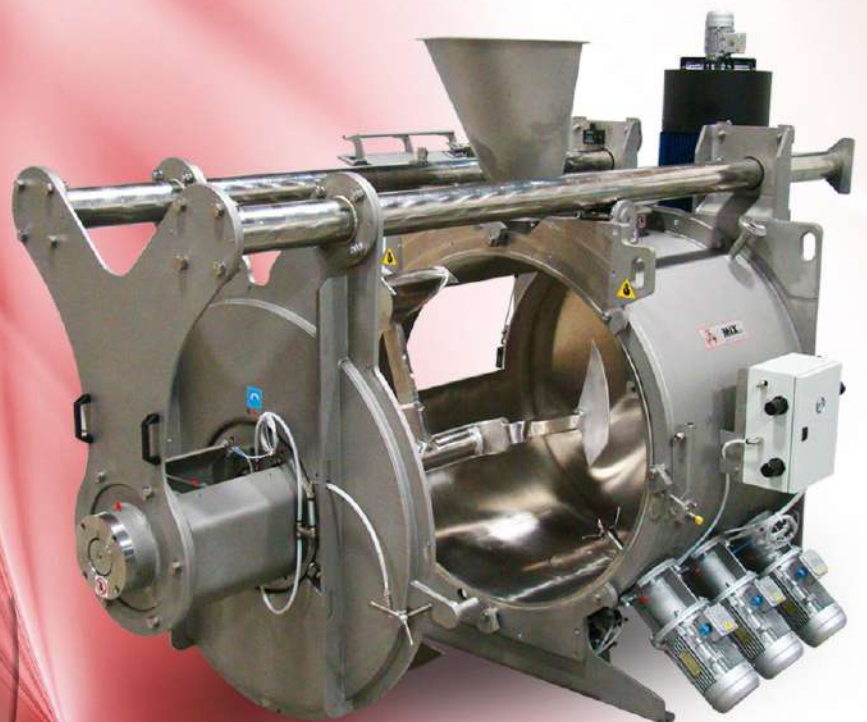
**MIX S.r.l.**

MIXING SYSTEMS AND  
COMPONENTS FOR PLANTS

[www.mixitaly.com](http://www.mixitaly.com)

# Mixing Division

Industrial Mixers



 ATEX RANGE AVAILABLE

# Quality and Innovation

## **MIX PRODUCTS AND SOLUTIONS**

MIX designs and manufactures Mixers, Stirred Bunkers, Granulators, Heaters, Coolers, Dryers, Reactors and Sterilisers. Gross capacity from 2 to 30 litres for laboratory mixers and from 75 to 13,000 litres for industrial mixers. On request up to 50,000 litres, for batch or continuous processes with the aid of different types of mixing tools. (ploughshare, MIX-paddles, fourfold screw ribbon) and optional components.

**Construction material:** AISI 304(L) - AISI 316(L) - AISI 316(Ti), carbon steel, wear-resistant steel.

**Industry application:** Foodstuff, Chemical-Cosmetic, Construction, Ecology, Industrial, Laboratory-Pilot Machinery, Animal feed.

The products comply with European Directive 2006/42/EC and on request EU Directive 2014/34/EU (pursuant to 94/9/EC) and 97/23/EC (ATEX and PED).



## **MIXING WITH THE RIGHT PARTNER**

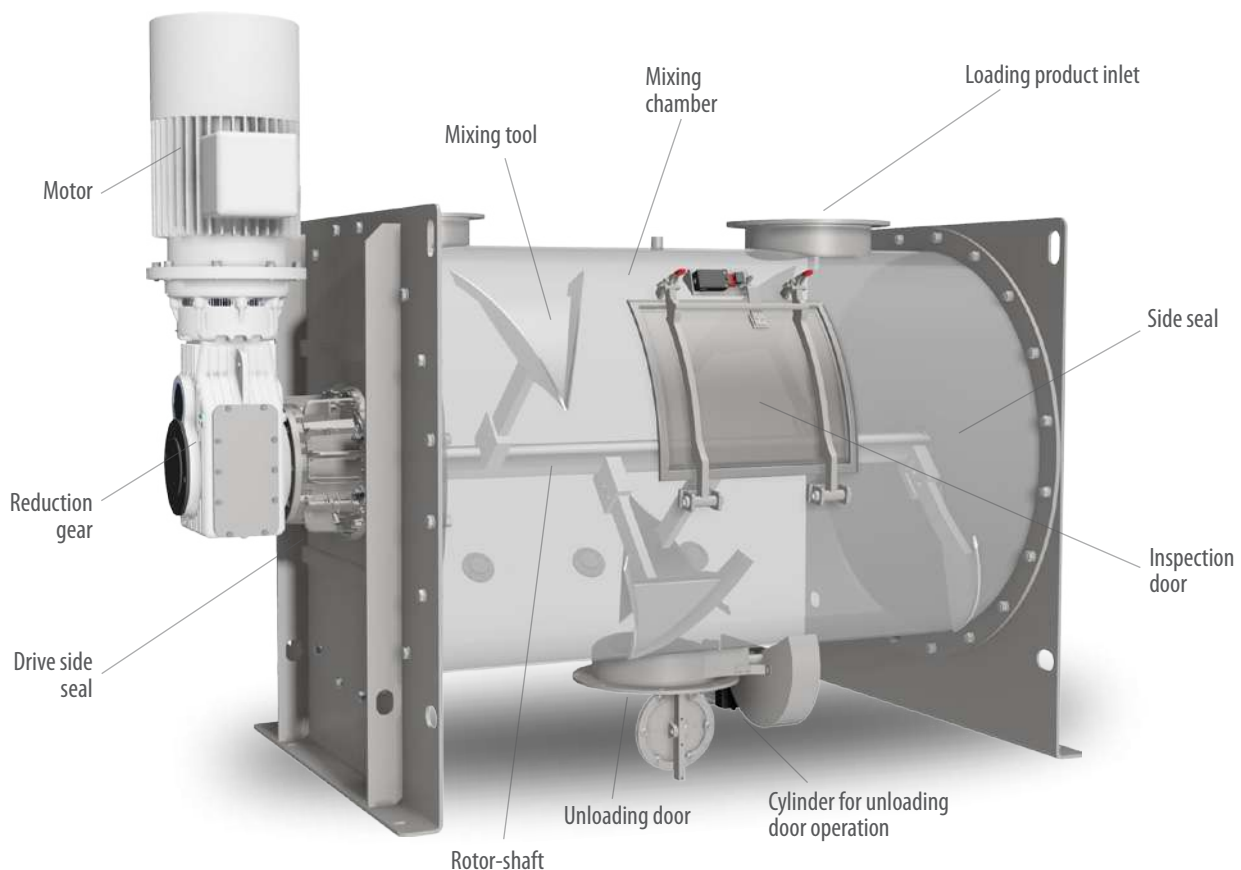
Customers purchasing MIX products obtain Technology - Experience - Support and industrial patented solutions with undeniable advantages with regards to Technical, Economic and Prestige. Mix is Project creativity.

# Operation

The purpose of the Mixer is to mix / blend different powdered, granule, fibre and paste products with possible addition of liquids, optimising the blend mix obtained, ensuring process control and consistency of the result. In addition the holding tank maintains the homogeneity / fluidity of the mix avoiding demixing; the Granulator granulates the powder particles, activating it with the suitable amount of liquids; The Heater / Cooler controls the temperature of the mix: the Dryer dries the moist products (powder or paste); the Reactor promotes and controls the physical and chemical reactions between the products; the Steriliser, sterilises through high temperatures and pressure the mixture.

## EXCLUSIVE PROJECT FUNCTIONAL TO THE PROCESS

The need to obtain processes with high mix homogeneity, with controlled and consistent quality, able to satisfy the different market demands, both for known and innovative products, has inspired the MIX technicians to design a range of machines with different compliance, responding to the specific needs of each individual process.



## THE PRINCIPLE OF THREE-DIMENSIONAL MECHANICAL FLUIDISATION

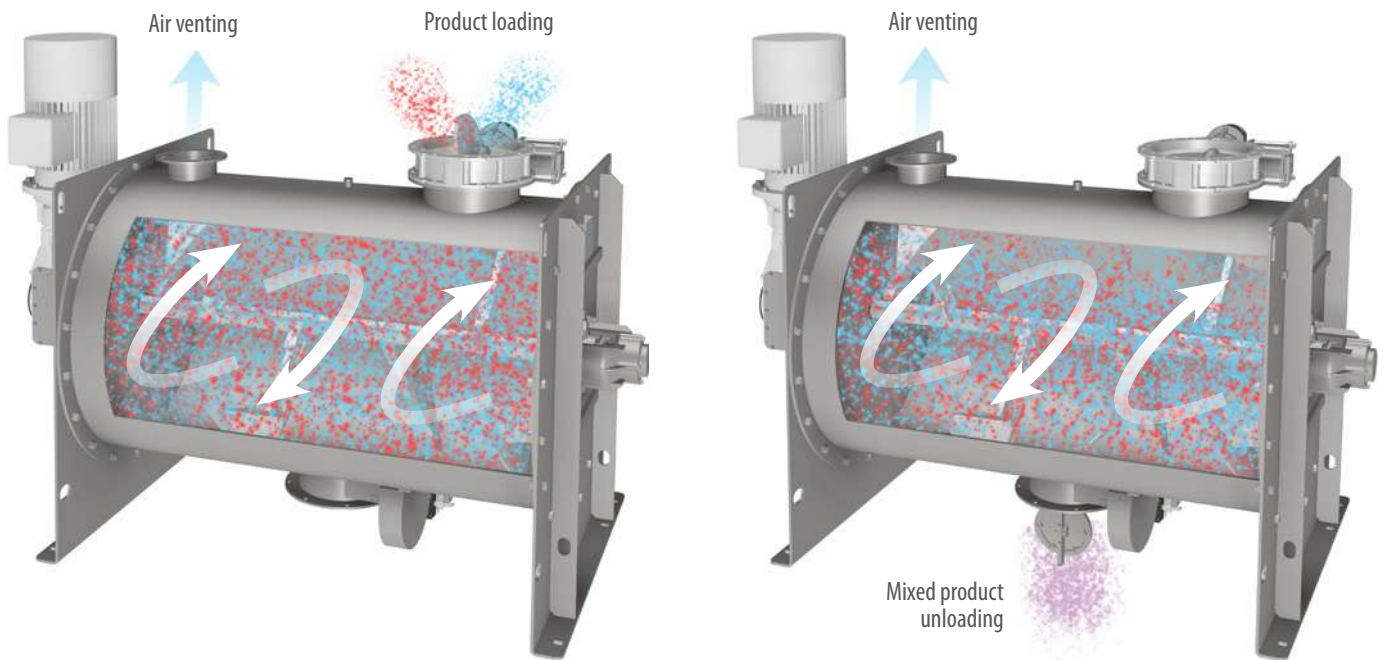
The ploughshare horizontal mixer works on a principle of "Three-Dimensional Mechanical Fluidisation" (centrifugal whirling of the products. This is done with the use of the mixing tools in the form of the Ploughshare that cause high turbulence with the result of a rapid and precise interpenetration / homogenisation of the various mixing components (regardless of their physical characteristics), thus avoiding dangerous stops / machine downtime as a result of product build-up.

# Mixing Process

## BATCH

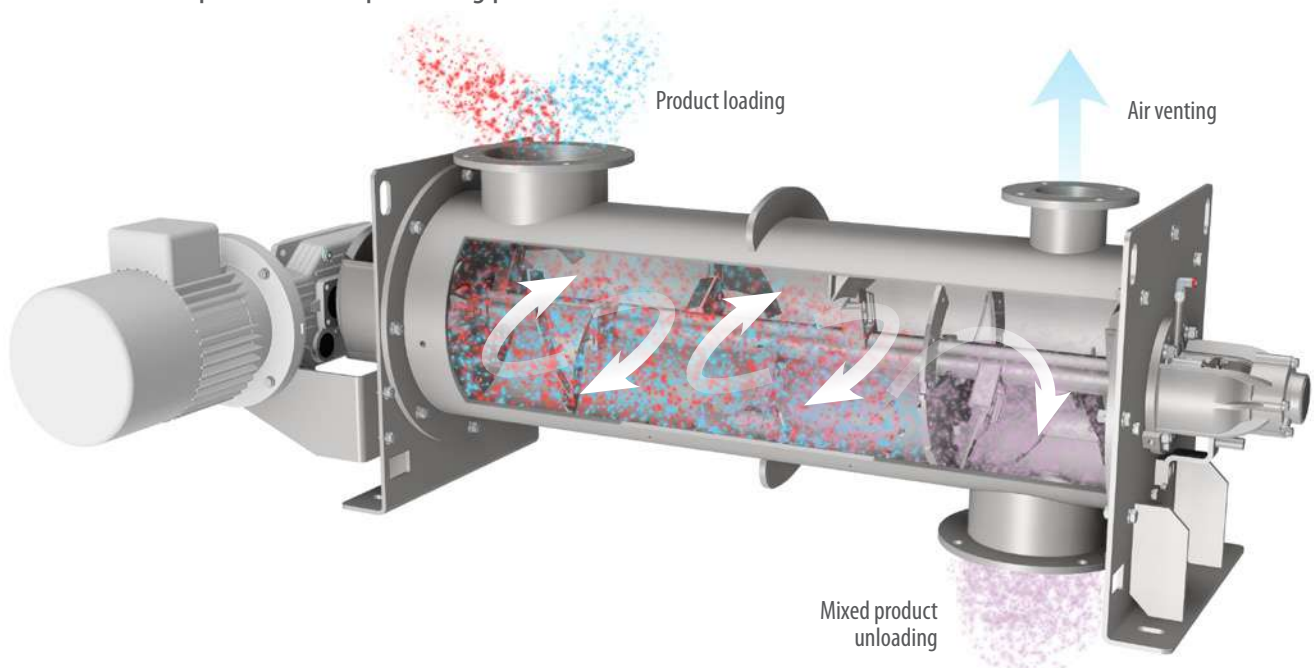
“Batch” process means discontinuous, the simplified production sequence as follows:

- venting spigot must always be open to vent air in a filter, preferably slightly under pressure;
- filling through the product inlet, with the unloading door closed;
- mixing, with unloading door closed, product inlet closed or open only if connected with a closed feeding hopper;
- emptying of the mixed product through the unloading door.



## CONTINUOUS

“Continuous” process. The machine is categorised as an open system; the production sequence consists in a flow of product that enters from the loading inlet, then it is mixed, and exits from the unloading outlet. Both inlet and outlet doors are always open. Therefore, it is important to remember that the final product quality depends on the permanence inside the mixing chamber and on the volume of product in the processing phase.



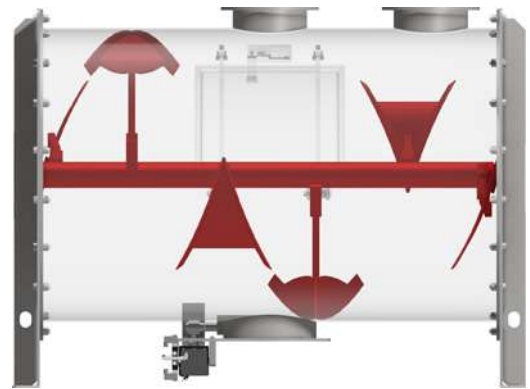
# Mixing Tools

The rotor shaft with tools, can be a single block obtained by welding, radially fixed at both ends and axially fixed only on the drive side, or the tools can be bolted to the rotor shaft with special self locking bolts. The rotor shaft has a suitably dimensioned structure, according to the products and the process planned. The specific shape of the tools is conceived to obtain the required mixing, homogenisation, granulation, aeration, of the mixed products.

**DEPENDING ON THE DIFFERENT PRODUCTS TO BE MIXED, THE FOLLOWING MIXING TOOLS ARE PROVIDED:**

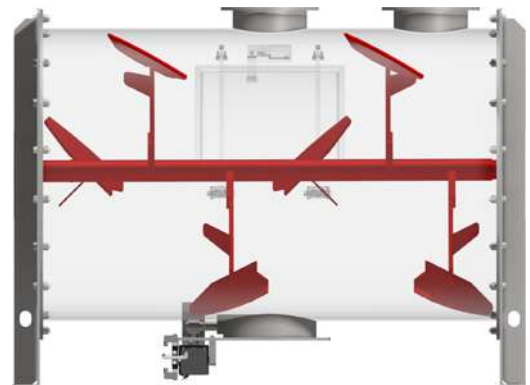
## **PLOUGHSHARE**

Are composed by two symmetrical plough-shaped faces. The space between the two faces is closed with a specially shaped metal sheet to prevent the wedging of the product. This tool works on the principle of mechanical fluidisation (centrifugal whirling of the products) obtains excellent mixing quality in a very short time.



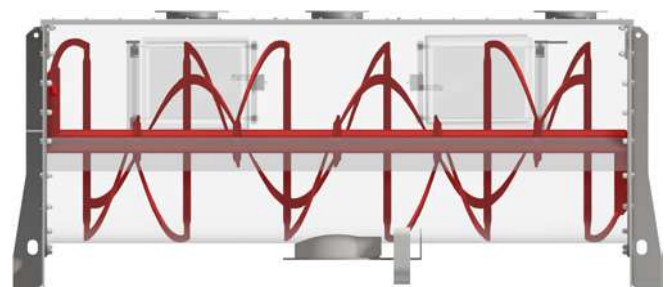
## **MIX PADDLE**

Mix Paddles require a longer mixing time than ploughshare, but are easier to clean, paddles are normally used with pastes and moist or sticky products..



## **SCREW (RIBBON)**

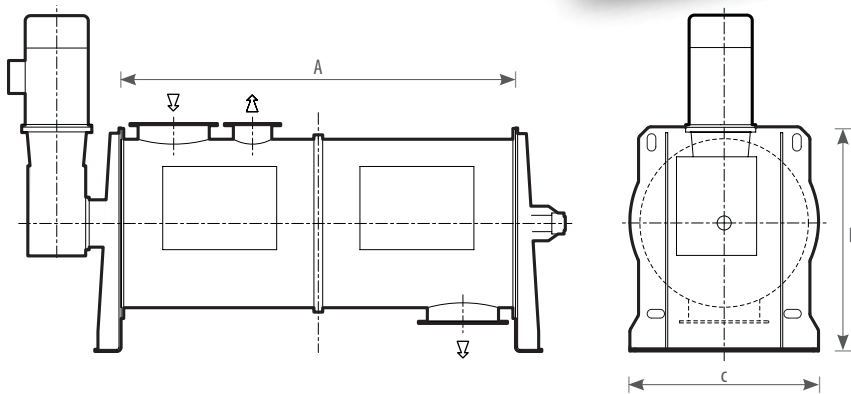
The fourfold screw ribbon is used for non intensive and gentle mixing or to keep the product agitated to avoid lumps. It is used also to homogenise different batches obtained with ploughshare or paddle intensive mixers in a single batch.



# Technical Data Sheets

**N-MXA A-MXA** Ploughshare Continuous Mixer

**N-MXH A-MXH** PalaMix Continuous Mixer

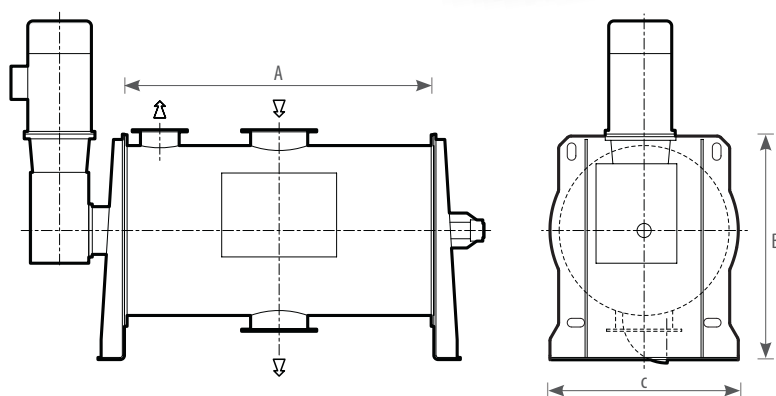
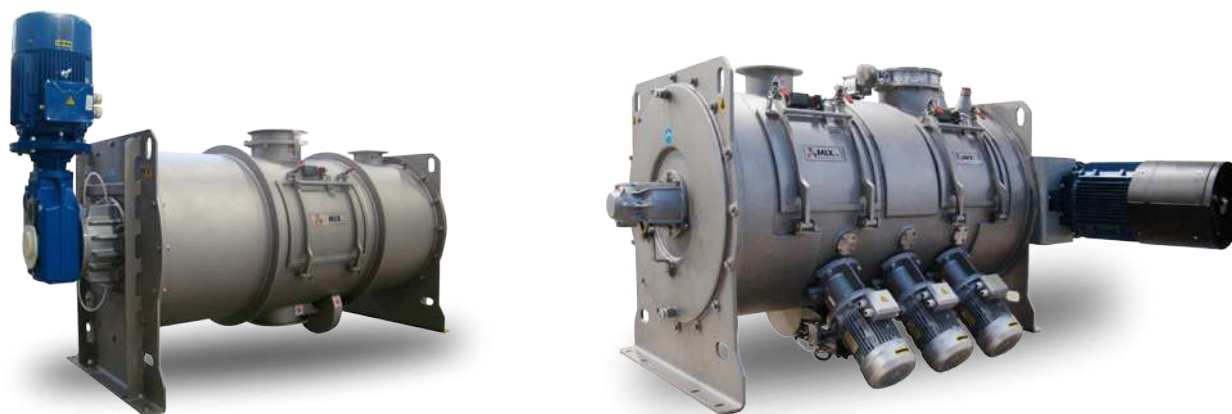


STD.	ATEX	TYPE	USEFUL WORK CAPACITY IN LITRES		A	B	C
			Minimum	Maximum			
N-	A-	MX.0075	25	40	750	580	510
N-	A-	MX.0150	50	80	1250	580	510
N-	A-	MX.0300	100	160	1750	665	590
N-	A-	MX.0420	160	240	1500	845	770
N-	A-	MX.0600	210	320	2000	845	770
N-	A-	MX.0850	300	450	1750	1015	930
N-	A-	MX.1200	420	640	2500	1015	930
N-	A-	MX.1700	540	820	2250	1200	1090
N-	A-	MX.2400	840	1280	3500	1200	1090
N-	A-	MX.3400	1070	1620	2500	1530	1450
N-	A-	MX.4800	1500	2260	3500	1530	1450
N-	A-	MX.7000	2340	3530	3500	1850	1780
N-	A-	MX.9500	3360	5100	3500	2210	2100
N-	A-	MX.H130	4300	6500	4500	2210	2100
N-	A-	MX.H160	5300	8000	5500	2210	2100
N-	A-	MX.H200	6700	10200	6000	2350	2300
N-	A-	MX.H260	8500	13000	6600	2500	2460
N-	A-	MX.H320	10500	16000	7000	2650	2620
N-	A-	MX.H400	13500	20500	7000	2980	2940

On request it is possible to supply mixers with multiple product inlets.

# N-MXC A-MXC Ploughshare Batch Mixer

## N-MXK A-MXK PalaMix Batch Mixer

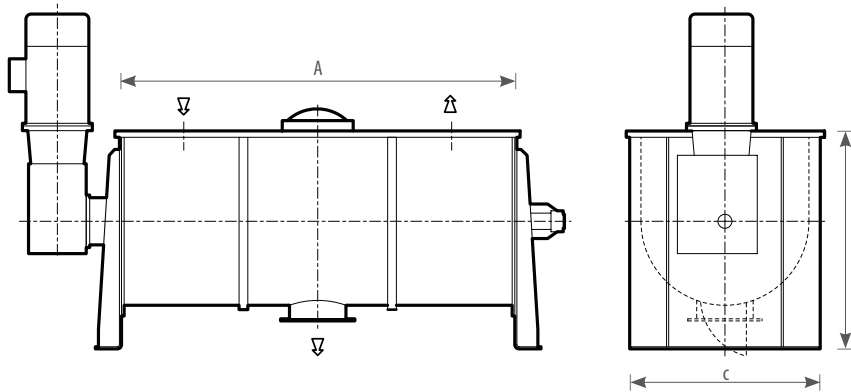


STD.	ATEX	TYPE	USEFUL WORK CAPACITY IN LITRES		A	B	C
			Minimum	Maximum			
N-	A-	MX.0075	10	65	750	710	510
N-	A-	MX.0150	20	125	1000	790	590
N-	A-	MX.0300	30	220	1000	950	770
N-	A-	MX.0420	50	330	1500	950	770
N-	A-	MX.0600	60	430	1250	1115	930
N-	A-	MX.0850	90	600	1750	1115	930
N-	A-	MX.1200	130	850	1750	1300	1090
N-	A-	MX.1700	160	1100	2250	1300	1090
N-	A-	MX.2400	260	1750	2000	1660	1450
N-	A-	MX.3400	320	2200	2500	1660	1450
N-	A-	MX.4800	500	3400	2500	1990	1780
N-	A-	MX.7000	700	4800	2400	2420	2100
N-	A-	MX.9500	1000	7000	3500	2420	2100
N-	A-	MX.H130	1300	9000	4500	2420	2100
N-	A-	MX.H160	1600	11000	4700	2580	2300
N-	A-	MX.H200	2000	13600	5000	2740	2460
N-	A-	MX.H260	2700	18000	5800	2900	2620
N-	A-	MX.H320	3300	22000	5500	2980	2940
N-	A-	MX.H400	4200	28000	7000	2980	2940

On request it is possible to supply mixers with many product inlets.

# Technical Data Sheets

## N-MXN A-MXN Fourfold Screw Ribbon Batch Mixer



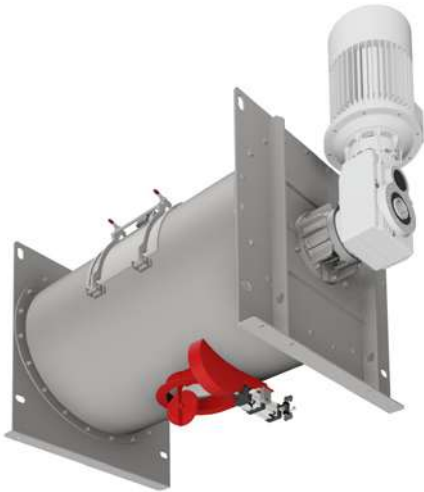
STD.	ATEX	TYPE	USEFUL WORK CAPACITY IN LITRES		A	B	C
			Minimum	Maximum			
N-	A-	MX.0150	80	135	1000	730	540
N-	A-	MX.0300	150	260	1250	850	660
N-	A-	MX.0420	250	450	1400	930	740
N-	A-	MX.0600	310	550	1800	930	740
N-	A-	MX.0850	440	780	1400	1200	960
N-	A-	MX.1200	630	1120	2000	1200	960
N-	A-	MX.1700	900	1550	2800	1200	960
N-	A-	MX.2400	1260	2200	2500	1450	1170
N-	A-	MX.3400	1840	3200	2500	1630	1390
N-	A-	MX.4800	2560	4450	3500	1630	1390
N-	A-	MX.7000	3370	6000	3000	2100	1700
N-	A-	MX.9500	5130	9000	4500	2100	1700
N-	A-	MX.H130	6500	11500	4000	2450	2100
N-	A-	MX.H160	8200	14400	5000	2450	2100
N-	A-	MX.H200	10700	18800	5000	2710	2360
N-	A-	MX.H260	12500	21800	5800	2710	2360
N-	A-	MX.H320	15500	27000	6200	2870	2520
N-	A-	MX.H400	20000	35000	7000	2980	2680

On request it is possible to supply mixers with many product inlets.



# Unloading Door

**OPEN**



## **TOROIDAL UNLOADING**

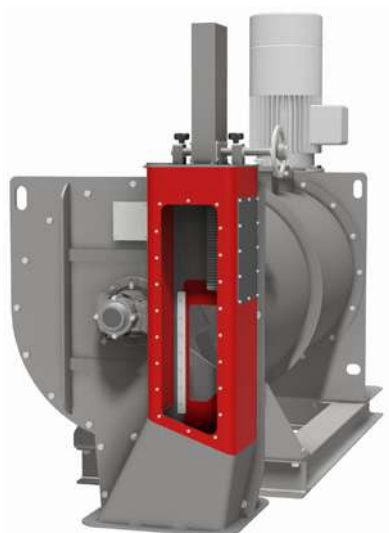
The door rebuilds the circular shape of the mixing chamber, preventing the formation of areas where the product remains unmixed. The particular profile of the small, self cleaning gasket guarantees the perfect seal even with sticky products such as oxides for pigments, sugar and flour with fats.

**CLOSED**



## **BOMB UNLOADING**

The door rebuilds the circular shape of the mixing chamber, preventing the formation of areas where the product remains unmixed. Bomb unloading makes it possible to obtain complete emptying of the mixer in a few seconds and it is such to guarantee the perfect seal, even with heavy products and rotor in movement, thanks to an additional closure reinforcement system.



## **FRONT UNLOADING**

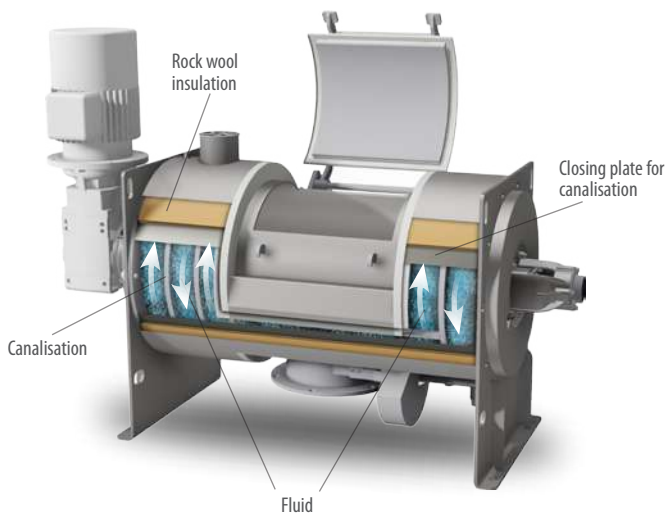
The front unloading outlet with guillotine valve has been designed to adjust the time the products remains inside the mixing chamber.



# Process-Specific Solutions

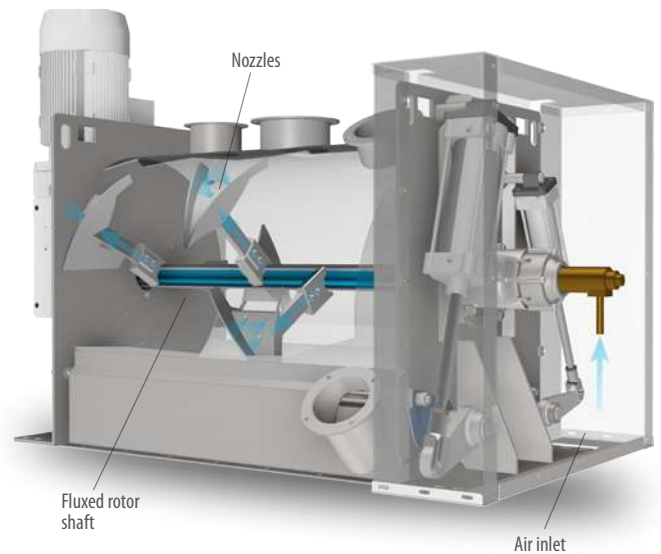
## HEAT EXCHANGER

MIX heat exchanger has a very high performance thanks to the heating / cooling fluid that is directly in contact with the mixing chamber. The exchange fluid: glycol water, cold water, hot water, hot oil, steam, has the function to take on or to transfer heat from the product inside the product being mixed, obtaining heating / cooling or drying. In the reactors, the heat exchange allows the chemical and physical reactions to be controlled, accelerating or delaying them.



## PNEUMATIC CLEANING OF THE MIXING CHAMBER

This system, protected by an Italian patent, injects compressed air inside the mixing chamber, while the rotor shaft is running. The nozzles, installed on the back of the ploughshares project the air against the wall of the mixing chamber, making the product to detach from the mixer walls. The combination of pneumatic cleaning system with the boom unloading door allows a very high degree of cleaning of the machine, after unloading, without operator intervention.



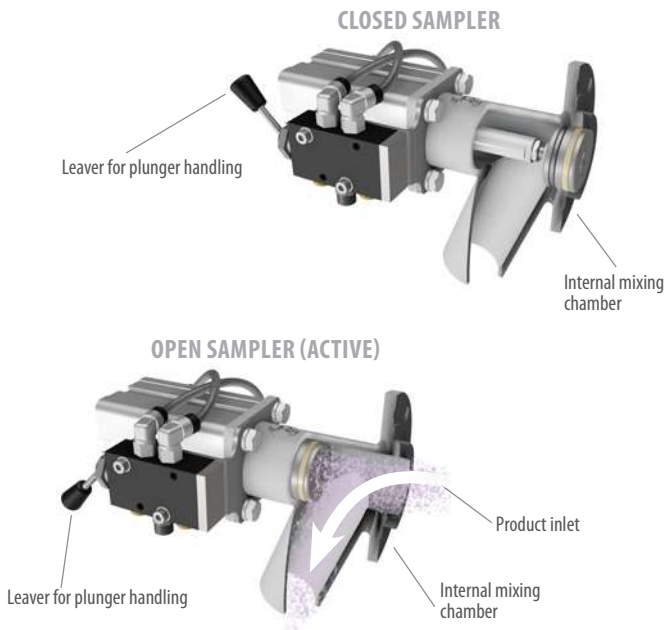
## CHAMBER CLEANING WITH REMOVABLE ROTOR

The solution with completely removable rotor shaft on suspended guides allows the operator to easily access each point within the mixing chamber, allowing complete cleaning of the same and the rotor shaft. An excellent solution for use in industries where cleaning of the equipment after every recipe change is of fundamental importance.



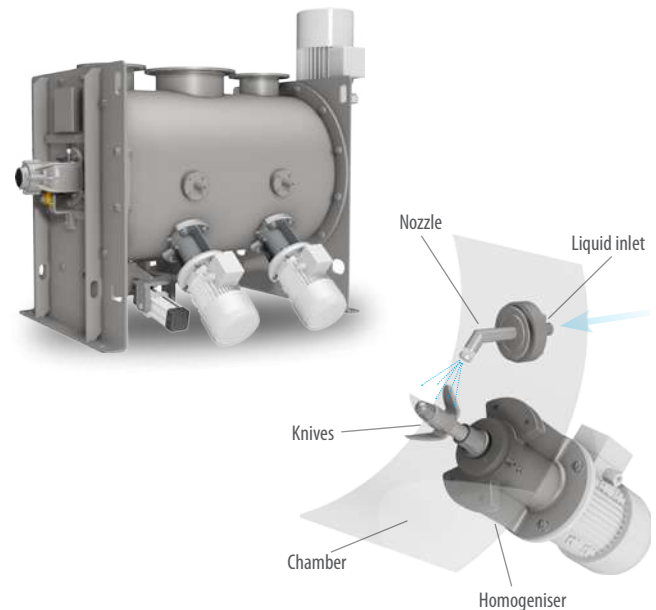
## SAMPLER

The Pneumatic sampler system allows samples to be collected; during the mixing phase, while the rotor shaft is running. The sampler, with easy and repetitive operations, is installed on the head of the mixer, avoiding the formation of product settling areas.



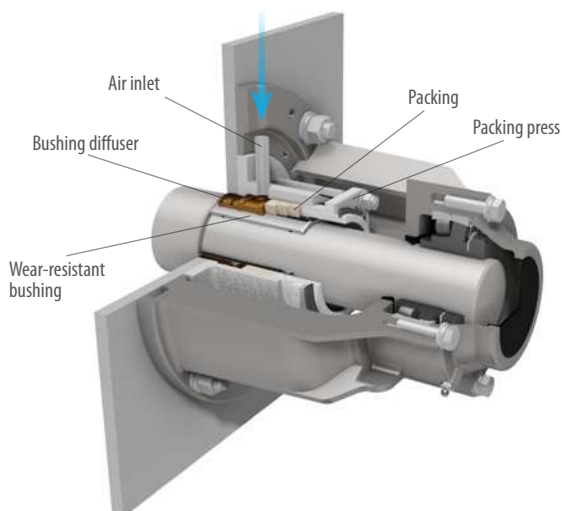
## HOMOGENISERS AND LIQUID INJECTION SYSTEM

Side mounted homogenisers are equipped with high speed rotating blades that facilitate the homogenisation of different products, reducing the mixing time and breaking any lumps. Liquid Injection has the function to add products inside the mixer and to facilitate the elimination of powder and the granulation process.



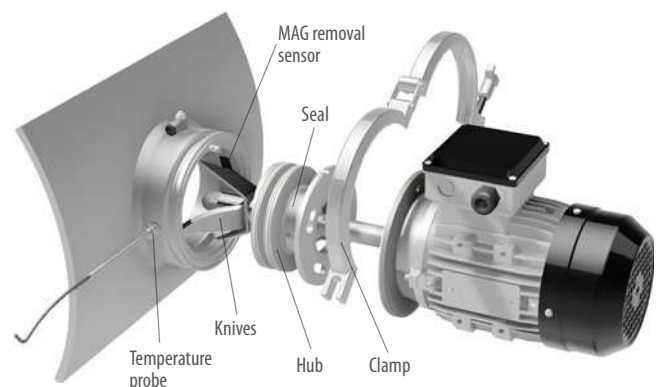
## MIX SEAL

The MIX Seal shaft rotor, has the following components: a solid base in cast iron, wear-resistant bushing on the rotor shaft, synthetic or certified packing gland for Food, fluid insufflation duct (dehumidified air or inert gas), two half aluminium or stainless steel body packing gland type seal for easy maintenance.



## HOMOGENISERS FOR FOOD

These MIX homogenisers are designed for use where anti-settling solutions of the product and facilitated sanitisation of the contact parts are required. They consist of: hub reconstructing the circularity of the mixing chamber, quick disconnection flange with safety clamp, homogeniser removal sensor signal, fluxed seal with temperature probe, different interchangeable knives and high-efficiency inverter motors (IE4).



**NOTE:** Height expressed in mm, if not specified otherwise. The company MIX reserves the right to make changes without prior notice. All sizes shown are approximate. The values are intended with tolerances resulting from normal production fluctuations. In special cases, and for precise values, our written confirmation is required.

# MIXING SYSTEMS AND COMPONENTS FOR PLANTS

QUALITY  
SERVICE  
TECHNOLOGY  
INNOVATION

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