

# Diaphragm Metering Pump Makro TZ

Greater safety in continuous operation through mechanically deflected multi-layer safety diaphragm



## Capacity range of single head pump: 260 – 2,100 l/h, 12 – 4 bar

The diaphragm metering pump Makro TZ (TZMb) has an adjustable eccentric drive mechanism and, together with the Makro TZ plunger metering pump, forms a range of drive

mechanisms with stroke lengths of 10 and/or 20 mm. A wide range of power end versions is available for use in areas at risk from explosion with ATEX certification.

## Your benefits

Excellent process safety and reliability:

- Patented multi-layer safety diaphragm with integral diaphragm rupture warning system
- Metering reproducibility is better than  $\pm 2\%$  within the 30 – 100% stroke length range under defined conditions and with correct installation

Excellent flexibility:

- The modular construction with single and double head versions permits a wide range of applications, with the double head designs being operated in push-pull mode
- It is possible to combine up to 4 metering units, even with different pump capacities, in multiple pump systems
- 5 different gear ratios are available
- Customised designs are available on request

## Field of application

- Volume-proportional metering of chemicals/additives in water treatment
- Metering of reactants and catalysts in the chemical industry
- Level-dependent metering of additives in industrial production engineering

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## Technical Data

Type TZMb	With 1500 rpm motor at 50 Hz				With 1800 rpm motor at 60 Hz				Suction lift	Connection, suction/discharge side	Shipping weight PP,NP,TT- SS
	Delivery rate at max. back pressure		Max. stroke rate	Delivery rate at max. back pressure		Max. stroke rate					
	bar	l/h		ml/stroke	Strokes/min		psi	l/h			
120260	12	260	60	72	174	312	82	86	4.0	1 1/2-25	46/54
120340	12	340	60	96	174	408	108	115	4.0	1 1/2-25	46/54
120430	12	430	60	120	174	516	136	144	4.0	1 1/2-25	46/54
120510	12	510	60	144	174	622	164	173	4.0	1 1/2-25	46/54
120650	12	640	60	180	174	-	-	-	4.0	1 1/2-25	46/54
070430	7	430	99	72	100	516	136	86	3.5	2-32	50/64
070570	7	570	99	96	100	684	181	115	3.5	2-32	50/64
070720	7	720	99	120	100	864	228	144	3.5	2-32	50/64
070860	7	860	99	144	100	1,032	273	173	3.5	2-32	50/64
071070	7	1,070	99	180	100	-	-	-	3.5	2-32	50/64
040840	4	840	194	72	58	1,008	266	86	3.0	2 1/4-40	56/80
041100	4	1,100	194	96	58	1,320	349	115	3.0	2 1/4-40	56/80
041400	4	1,400	194	120	58	1,680	444	144	3.0	2 1/4-40	56/80
041670	4	1,670	194	144	58	2,004	529	173	3.0	2 1/4-40	56/80
042100	4	2,100	194	180	58	-	-	-	3.0	2 1/4-40	56/80

Stroke length 10 mm

Plastic material design: max. 10 bar back pressure

The permissible priming pressure on the suction side is approximately 50% of the max. permitted back pressure

## Materials in Contact With the Medium

Liquid end	Suction/ discharge connector	DN 25 ball valves		DN 32/DN 40 plate valves **			
		Seals	Valve balls	Valve seats	Seals	Valve plates/valve spring	Valve seats
PPT Polypropylene	PVDF	PTFE	Borosilicate glass	PTFE	PTFE	Ceramic/ Hast. C + CTFE**	PTFE
PCT PVC	PVDF	PTFE	Borosilicate glass	PTFE	PTFE	Ceramic/ Hast. C + CTFE**	PTFE
TTT PTFE with carbon	PVDF	PTFE	Ceramic	PTFE	PTFE	Ceramic/ Hast. C + CTFE**	PTFE
SST Stainless steel mat. no. 1.4404	Stainless steel mat. no. 1.4581	PTFE	Stainless steel mat. no. 1.4401	PTFE	PTFE	Stainless steel 1.4404/Hast. C	PTFE

Multi-layer safety diaphragms with PTFE coating.

\*\* The valve spring is coated with CTFE (similar to PTFE)

Special versions on request.

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## Motor Data

Identity code specification		Power supply			Remarks
S	3-phase, IP 55	220 – 240 V/380 – 420 V 250 – 280 V/440 – 480 V	50 Hz 60 Hz	0.75 kW	
R	3-phase, IP 55	230 V/400 V	50/60 Hz	1.5 kW	with PTC, speed control range 1:20 with external fan 1-phase 230 V; 50/60 Hz
V0	3-phase, IP 55	230 V ±5 %	50/60 Hz	1.5 kW	Variable speed motor with integrated frequency converter
L1	3-phase, II 2G Ex eb IIC T3 Gb	220 – 240 V/380 – 420 V	50 Hz	0.75 kW	
L2	3-phase, II 2G Ex db IIC T4 Gb	220 – 240 V/380 – 420 V	50 Hz	0.75 kW	with PTC, speed control range 1:5
P1	3-phase, II 2G Ex eb IIC T3 Gb	250 – 280 V/440 – 480 V	60 Hz	0.75 kW	
P2	3-phase, II 2G Ex db IIC T4 Gb	250 – 280 V/440 – 480 V	60 Hz	0.75 kW	with PTC, speed control range 1:5
V2	3-phase, II 2G Ex de IIC T4	400 V ±10 %	50/60 Hz	1.5 kW	Ex-variable speed motor with integrated frequency converter

Motor data sheets can be requested for more information. Special motors or special motor flanges are available on request.

The motors are designed in compliance with the Ecodesign Directive 2009/125/EC.

## Information for use in areas at risk from explosion

Only use pumps with the appropriate labelling in line with the ATEX Directive 2014/34/EU in premises at risk from explosion. Ensure that the explosion group, category and degree of protection specified on the label corresponds to or is better than the conditions prevalent in the intended field of application.