

**ProMinent® MAKRO/ 5 MOTOR-DRIVEN METERING PUMP.
HIGH FEED RATES EVEN AT HIGH BACK PRESSURES.**



POWER PACK



ProMinent®

TWO PUMPS IN ONE FROM THE START:

STAINLESS STEEL AND PLASTIC LIQUID ENDS - PROMinENT® MAKRO/ 5



Makro/ 5 HM- Diaphragm metering pump

The Makro/ 5 HM has a mechanically operated diaphragm and can achieve up to 4000 l/h feed rate per liquid end with a stroke length of max. 20 mm at 4 bar back pressure. The PP/PVC/Teflon and stainless steel material variants make the Makro/ 5 HM a universal problem solver for high feed rate requirements in low-pressure systems.

Characteristic data:

Stroke length: 0...20 mm

Reproducibility: ± 2 %

Feed rate: up to 4000 l/h, 4 bar
per liquid end





Makro/ 5 HMH-

Hydraulic diaphragm metering pump

Optimum reliability and safety are the operating criteria of the Makro/ 5 HMH. The use of state of the art technology including patented composite diaphragm, diaphragm position control, integrated safety cut-out etc. makes the Makro/ 5 HMH the ideal option for practically any system. Available in pressure ratings 6, 10, 16, 25 bar in PP/PVC/Teflon/stainless steel versions.



Characteristic data:

Stroke length: 0...50 mm

Reproducibility: ± 1 %

Feed rate: up to 6000 l/h, 6 bar to

1170 l/h, 25 bar per liquid end

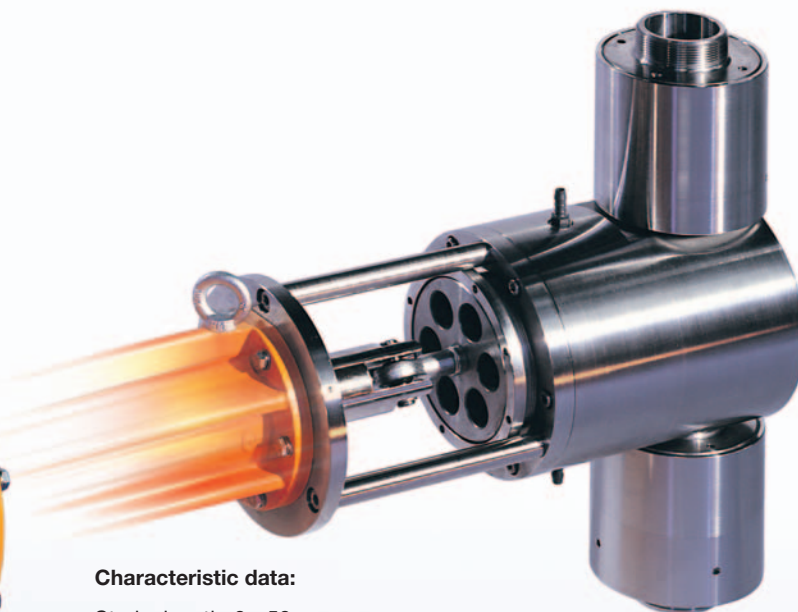


Makro/ 5 HK-

Piston metering pump

The Makro/ 5 is ideally suited to high-pressure applications up to 320 bar.

The combination of chromium oxide coated stainless steel pistons and graphite-filled PTFE packing rings guarantees low-wear operation combined with high precision.



Characteristic data:

Stroke length: 0...50 mm

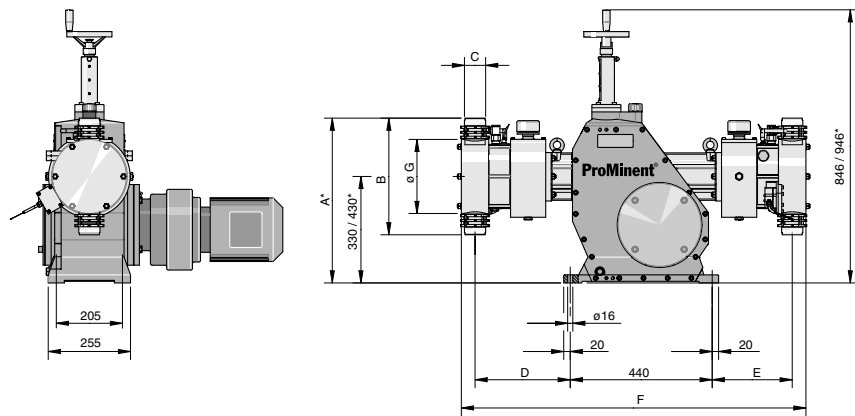
Reproducibility: ± 0.5 %

Feed rate: up to 6000 l/h, 6 bar

to 100 l/h, 320 bar per liquid end



Makro/ 5 – designed as a double-headed pump but also fully functioning with one liquid end. Further liquid ends can be added at any time.



Measurement "A", type HMH...-100/50 and 130/50 with frame

Pump type	Makro/ 5	Connection	A	B	C	D	E	F	Ø G
HMH...-60/50 S		DN 32	494	328	G 2 A	289	242	1045	230
HMH...-130/50 S*		DN 65	635	610	G 2 1/2 A	350	303	1193	300
HMH...-130/50 P,PP,T*		DN 65	618	575	Flange DN 65 (pipe d75)	358	311	1247	300

Detailed dimension drawings for all versions available on request.

The Makro/ 5 functions as follows: the rotation of the three phase standard motor is geared down by a spur gear. An adjustable eccentric cam and a connecting rod convert the rotation into oscillation and transfer the movement to a push rod. The compulsory return stroke inherent in this design is particularly suited

to high suction lifts or for metering highly viscous media.

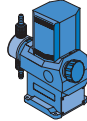
Pump type	Feed rate at 50 Hz operation and max. back pressure		Max. stroke rate		Suction lift	Connection suction/ discharge side	Shipping weight
ProMinent® Makro/ 5	bar	l/h	m/stroke	strokes/min	mWs	G – DN	kg
Diaphragm version							
5/20 HM 09-4000 P	4	4000	427	156	3	G 2 1/2"-50	320
5/20 HM 09-4000 PP	4	4000	427	156	3	G 2 1/2"-50	320
5/20 HM 09-4000 T	4	4000	427	156	3	G 2 1/2"-50	320
5/20 HM 09-4000 S	4	4000	427	156	3	G 2 1/2"-50	340
Hydraulic version							
5 HMH 23 60-50 S	25	450	125	60	3	G 2-32	320
5 HMH 19 60-50 S	25	562	125	75	3	G 2-32	320
5 HMH 14 60-50 S	25	772	125	103	3	G 2-32	320
5 HMH 11 60-50 S	25	997	125	133	3	G 2-32	320
5 HMH 09 60-50 S	25	1170	125	156	3	G 2-32	320
5 HMH 09 130-50 P	6	6000	641	156	3	Flange-DN65*	330
5 HMH 09 130-50 PP	6	6000	641	156	3	Flange-DN65*	330
5 HMH 09 130-50 T	6	6000	641	156	3	Flange-DN65*	330
5 HMH 09 130-50 S	6	6000	641	156	3	G 2 1/2-DN65	340
Piston version							
5/50 HK 09-17 S	320	100	11.3	156	3	Rp 3/8-10	300
5/50 HK 23-130 S	6	2269	663	60	3	G 2 1/2-65	350
5/50 HK 19-130 S	6	2837	663	75	3	G 2 1/2-65	350
5/50 HK 14-130 S	6	3896	663	103	3	G 2 1/2-65	350
5/50 HK 11-130 S	6	5031	663	133	3	G 2 1/2-65	350
5/50 HK 09-130 S	6	6000	663	156	3	G 2 1/2-65	350

For further capacity ratings, see Product Catalogue.

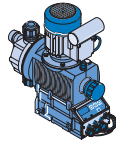
SERIAL SUCCESS: PROMINENT® MOTOR-DRIVEN DIAPHRAGM METERING PUMPS



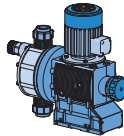
**ProMinent®
alpha**
Capacity range:
up to 10 bar
up to 21 l/h



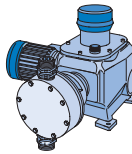
**ProMinent®
Vario**
Capacity range:
up to 12 bar
up to 144 l/h



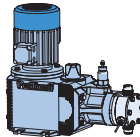
**ProMinent®
Sigma/ 2 HM**
Capacity range:
up to 12 bar
up to 420 l/h



**ProMinent®
Sigma/ 3**
Capacity range:
up to 12 bar
up to 1,030 l/h

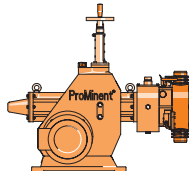


**ProMinent®
Makro TZ HM/HMH**
Capacity range:
up to 16 bar
up to 2,500 l/h

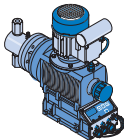


**ProMinent®
Hydro**
Capacity range:
up to 64 bar
up to 150 l/h

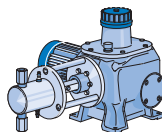
**ProMinent®
Makro/ 5 HM/HMH**
Capacity range:
up to 25 bar
up to 6,000 l/h



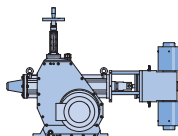
PROMINENT® MOTOR-DRIVEN PISTON METERING PUMPS



**ProMinent®
Sigma/ 2 HK
Meta HK**
Capacity range:
up to 320 bar
up to 76 l/h



**ProMinent®
Makro TZ HK**
Capacity range:
up to 320 bar
up to 1,141 l/h



**ProMinent®
Makro/ 5 HK**
Capacity range:
up to 320 bar
up to 6,000 l/h

to high suction lifts or for
metering highly viscous
media.

Suction lift	Connection suction/ discharge side	Shipping weight
mWs	G – DN	kg
3	G 2 1/2"-50	320
3	G 2 1/2"-50	320
3	G 2 1/2"-50	320
3	G 2 1/2"-50	340
3	G 2-32	320
3	G 2-32	320
3	G 2-32	320
3	G 2-32	320
3	G 2-32	320
3	Flange-DN65*	330
3	Flange-DN65*	330
3	Flange-DN65*	330
3	G 2 1/2"-DN65	340
3	Rp 3/8-10	300
3	G 2 1/2"-65	350
3	G 2 1/2"-65	350
3	G 2 1/2"-65	350
3	G 2 1/2"-65	350
3	G 2 1/2"-65	350

The Makro/ 5 with hydraulic diaphragm liquid end. State of the art technology for feed rates up to 6000 l/h.



The Makro/ 5 is a new, high performance motor-driven metering pump for numerous application areas. A long service life and reliable operation at high feed rates are characteristic features of the Makro/ 5.

Your requirements determine the configuration. The modular structure of the Makro/ 5 base model with one liquid end allows the operator to add further liquid ends as required. This opens up a broad spectrum of individualised applications.

ProMinent® Makro/ 5 pumps leave nothing to be desired:

- 10 metering pistons in the piston series
 - 1 metering diaphragm size in the diaphragm (M) series
 - 2 hydraulic diaphragms in the hydraulic diaphragm (MH) models
 - 4 different liquid end materials for diaphragm (M) and hydraulic diaphragm (MH) models
 - the piston (K) models are fitted with stainless steel liquid ends.
- 5 stroke rates and 22 pressure ratings from 4 bar to 320 bar adequately cover the whole application range. In addition, different motor flange mountings enable trouble-free attachment of explosion-proof, national standard and/or voltage rating-compliant drive motors.

Performance in figures:

Makro/ 5 achieves a feed rate of 6000 l/h at 6 bar back pressure and 100 l/h at 320 bar back pressure.

Makro/ 5 is essentially designed as a double head pump but is also available as a single head pump and can be retrofitted at a later date is necessary.

With two liquid ends it will achieve a feed rate of 12,000 l/h at a back pressure of 6 bar. If that's not enough, never fear: operators can couple up to 6 Makro liquid ends together to achieve a cool 36,000 l/h at 6 bar back pressure.



Makro/ 5 – optimum reliability and safety for top performance in all industries

PROMINENT SERVICE AND EXPERIENCE: CONSTANT COMPANION TO THE MAKRO/ 5.

ProMinent is a globally active company. Our consultants and engineers are to be found in all industrial centres. Wherever you are, you can access our experience in the area of fluid controls. We shall be happy to partner and advise you from the first idea to the finished system, from the first production

run through regular maintenance to subsequent fitting or modification requirements. You can count on specialists who have made your success their job, and who regard customer proximity as crucial. Please, exploit our experience. Makro/ 5 is a product

of ProMinent, a name that stands for sound advice, prompt service and reliable products, worldwide.



The concentrated energy of ProMinent's service specialists



Concentrated energy in action – coupling up to six Makro/ 5



Subject to technical alterations.
Printed in Germany / PT MAK 001 12/01 GB

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