

ProMinent®

Meta metering pumps

Mechanically-actuated diaphragm and packed-plunger.

Precision pumps for large capacities

The Meta series pumps are designed to meter accurately at high flow rates or high pressures. Motor-driven reciprocating pumps with spring-return, lost-motion drive, Metas are capable of multiplexing to increase capacity or pump multiple fluids from a common drive motor.

Two liquid end options

Meta MTMa mechanically-actuated diaphragm pumps feature a steel core DEVELOPAN® diaphragm threaded directly onto the reciprocating drive shaft for low to medium pressure metering [up to 174 psig (12 bar)]. Maximum capacities range from 20.6 to 207 gph (78 to 785 L/h). This design offers simplicity of operation and maintenance while maintaining metering repeatability. Typical applications include metering of disinfectants, coagulants, acids and bases for water and wastewater treatment.

Meta MTKa packed-plunger pumps offer high pressure capabilities for



feeding into high pressure boilers, reactors or pipelines [up to 3477 psig (240 bar)]. Maximum capacities range from 1.9 to 15.6 gph (7.3 to 59.2 L/h). These pumps offer exceptional repeatability; better than $\pm 0.5\%$.

Process Control

Meta pumps may be operated manually by adjusting the stroke length knob (displacement per stroke) at a constant stroke

frequency, using a constant speed motor. External control of stroke frequency via analog signal is possible with variable speed drives (DC SCR or AC inverter). External control of displacement per stroke via analog or 3P signal is possible with optional stroke positioning systems.

Pump selection guide

Pump Series	Pump Type		Liquid End Design		Max flow rate per head GPH LPH	
	H Main pump accepting motor	A Add-on module driven by main pump	M Mechanically-actuated diaphragm	K Packed-plunger		
Meta MTMaH	X		X		208	790
Meta MTMaA		X	X		208	790
Meta MTKaH	X			X	16	59
Meta MTKaA		X		X	16	59

Note: Liquid end designs may be intermixed with add-on pumps (i.e. Meta MTMaH drive with Meta MTMaA add-on). Up to five add-on pumps may be run by a single drive pump.

Specifications: Meta

General:

<i>Housing construction:</i>	Acrylic resin coated cast aluminum
<i>Drive:</i>	Cam and spring-follower
<i>Motor mounting flange:</i>	Fits all NEMA 56C frame motors (motor not included with pump)
<i>Gear ratios and stroke frequencies (with 1725 RPM motor):</i>	10:1 = 172 SPM, 12:1 = 144 SPM, 15:1 = 115 SPM, 20:1 = 86 SPM
<i>Motor coupling:</i>	Flexible coupling included with pump
<i>Maximum motor RPM:</i>	1725
<i>Stroke frequency control:</i>	Remote or automatic frequency control optional with DC SCR drive or AC inverter
<i>Stroke counting:</i>	Available with optional stroke counter
<i>Lubrication:</i>	Oil lubricated
<i>Recommended oil:</i>	Mobil Gear Oil 634, ISO VG 460
<i>Oil quantity:</i>	Approximately 0.6 quarts (550 mL)
<i>Recommended oil change interval:</i>	5,000 hours
<i>Separation of drive from liquid end:</i>	An air gap separates the drive from the liquid end to prevent cross contamination of oil and process fluid in the event of diaphragm (MTMaH/MTMaA) or packing (MTKaH/MTKaA) failure.

Meta MTMaH/MTMaA:

<i>Pump type:</i>	Mechanically actuated diaphragm (diaphragm threaded directly to reciprocating shaft)		
<i>Diaphragm:</i>	PTFE-faced EPDM with steel core		
<i>Max. stroke length:</i>	0.157" (4 mm) - All except 6 mm types listed below. 0.236" (6 mm) - Pump types 10200, 10263, 10330, 04400, 04527 and 03662.		
<i>Stroke length adjustment:</i>	Manual, in 1% increments, 2 turns = 100%. Motorized stroke length control optional.		
<i>Diaphragm failure indication:</i>	Optional - see accessories		
<i>Wetted material</i>	<u>Continuous</u>	<u>Short Term</u>	
<i>of construction options</i>	PP = polypropylene	176°F (80°C)	212°F (100°C)
<i>and maximum fluid</i>	PC = PVC	113°F (45°C)	140°F (60°C)
<i>temperatures:</i>	TT = carbon-filled PTFE	194°F (90°C)	248°F (120°C)
	SS = 316 stainless steel	194°F (90°C)	248°F (120°C)
<i>Check valves:</i>	Single ball (Note: Check valve bodies for 6 mm PP, PC and T pumps are PVDF with ceramic valve balls).		
<i>Repeatability:</i>	When installed and operated according to instructions, better than ±2% of rated capacity.		

Meta MTKaH/MTKaA:

<i>Pump type:</i>	Packed-plunger (plunger threaded directly to reciprocating shaft)
<i>Max. stroke length:</i>	0.610" (15.5 mm)
<i>Stroke length adjustment:</i>	Manual, in 0.2% increments, 10 turns = 100%. Motorized stroke length control optional.
<i>Plunger material:</i>	SS/aluminum oxide ceramic
<i>Packing:</i>	Special PTFE ring packing
<i>Packing seal method:</i>	Self-adjusting spring tensioned packing gland with Hastelloy-C spring.
<i>Seal flush port:</i>	Packing lubrication/flushing is possible for abrasive or hazardous fluids via the flush port. Hosebarbs fit 1/2"x 3/8" flexible tubing
<i>Check valves:</i>	Double ball
<i>Repeatability:</i>	When installed and operated according to instructions, better than $\pm 0.5\%$ of rated capacity.
<i>Maximum fluid temperature:</i>	Continuous = 392°F (200°C); short term = 482°F (250°C)

Data required to size metering pumps and accessories

Complete this data sheet and fax it to ProMinent Pittsburgh at (412) 787-0704 or ProMinent Canada at (519) 836-5226 for a review of the system hydraulics and recommendations on pump and accessory selection.

Desired capacity min./max.	GPH (l/h) _____
Available power supply	_____ V, _____ Hz, _____ phase
Working temperature min./max.	°F (°C) _____
Description of process fluid	_____
Concentration %	_____
Solids content %	_____
Absolute viscosity, cP	_____
Vapor pressure at working temperature	psig (bar) _____
Remarks (e.g. abrasive, developing gases and fumes, flammable, corrosive)	_____ _____

Suction conditions:

Suction lift min./max., or	ft. (m) _____
Positive suction head min./max., or	ft. (m) _____
Pressure in chemical tank	psig (bar) _____
Length of suction line	ft. (m) _____
Size (I.D.) of suction line	in. (mm) _____
Number of valves and fittings in suction line	_____

Discharge conditions:

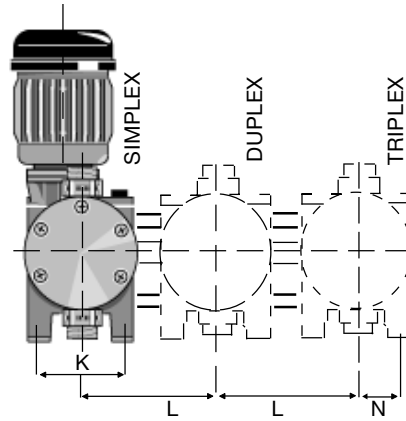
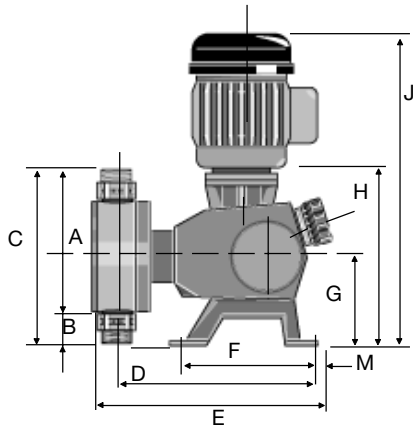
Back-pressure min./max.	psig (bar) _____
Discharge head min./max.	ft. (m) _____
Negative discharge head min./max.	ft. (m) _____
Length of discharge line	ft. (m) _____
Size (I.D.) of discharge line	in. (mm) _____
Number of valves and fittings in discharge line	_____

System sketch

Dimensions: Meta

Dimensions in inches (mm)

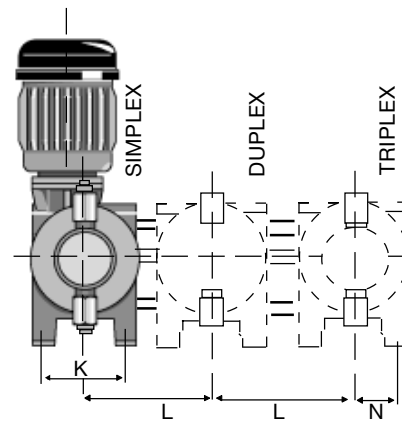
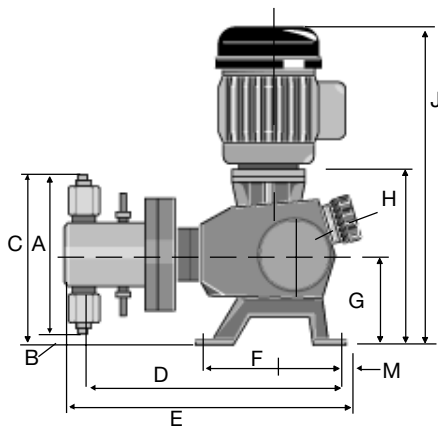
Meta MTMa



Size	O.D. Head	CONN MNPT	A	B	C	D	E	F	G	H	J*	K	L	M	N
130	5.72 (145)	3/4"	10.78 (274)	1.78 (45)	12.56 (319)	10.5 (267)	12.0 (305)	6.69 (170)	4.52 (115)	9.56 (243)	17.91 (455)	4.33 (110)	7.17 (182)	0.41 (10.5)	2.16 (55)
260	5.72 (145)	3/4"	10.78 (274)	1.78 (45)	12.56 (319)	10.5 (267)	12.0 (305)	6.69 (170)	4.52 (115)	9.56 (243)	17.91 (455)	4.33 (110)	7.17 (182)	0.41 (10.5)	2.16 (55)
530	7.08 (180)	1"	12.69 (322)	3.63 (92)	16.31 (414)	10.6 (270)	12.2 (310)	6.69 (170)	4.52 (115)	9.56 (243)	17.91 (455)	4.33 (110)	7.17 (182)	0.41 (10.5)	2.16 (55)

*Overall height varies with motor selected.

Meta MTKa



Size	O.D. Head	CONN FNPT	A	B	C	D	E	F	G	H	J*	K	L	M	N
12.5	3.12 (79.3)	1/4"	8.5 (216)	0.28 (7.1)	8.78 (223)	12.33 (313)	13.32 (338)	6.69 (170)	4.52 (115)	9.56 (243)	18.75 (476)	4.33 (110)	7.17 (182)	0.41 (10.5)	2.16 (55)
25	3.12 (79.3)	1/4"	8.5 (216)	0.28 (7.1)	8.78 (223)	12.33 (313)	13.32 (338)	6.69 (170)	4.52 (115)	9.56 (243)	18.75 (476)	4.33 (110)	7.17 (182)	0.41 (10.5)	2.16 (55)
50	3.5 (89.3)	3/8"	8.9 (226)	0.08 (2.0)	8.98 (228)	12.33 (313)	13.32 (338)	6.69 (170)	4.52 (115)	9.56 (243)	18.75 (476)	4.33 (110)	7.17 (182)	0.41 (10.5)	2.16 (55)

*Overall height varies with motor selected.

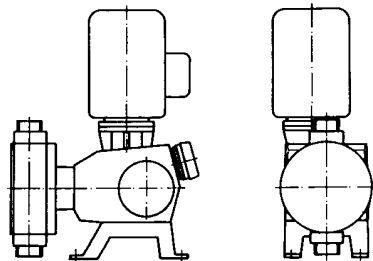
Identity code: Meta MTMa Diaphragm Metering Pumps

Series:
MTMa Meta diaphragm-type metering pump
Version a

H	Main drive																																																							
A	Add-on drive																																																							
		Pump version: 4mm 12065* 04353 10200 12086* 03441 10263 12108* 03530 10330 12130* 10173 04400 10130 10216 04527 09173 10260 03662 07216 05440 06260 05530 05265 * for PC, PP, TT versions, max. 145 psig (10 bar)			6mm 10200 10263 10330 04400 04527 03662			Cross Reference Conversion Table from former version to new ident code version <table border="1"> <thead> <tr> <th>Former</th> <th>Ident Code</th> <th>Former</th> <th>Ident Code</th> <th>Former</th> <th>Ident Code</th> </tr> </thead> <tbody> <tr> <td>20-130</td> <td>12065</td> <td>12-260</td> <td>07216</td> <td>151-260</td> <td>10173</td> </tr> <tr> <td>15-130</td> <td>12086</td> <td>10-260</td> <td>06260</td> <td>121-260</td> <td>10216</td> </tr> <tr> <td>12-130</td> <td>12108</td> <td>20-530</td> <td>05265</td> <td>101-260</td> <td>10260</td> </tr> <tr> <td>10-130</td> <td>12130</td> <td>15-530</td> <td>04353</td> <td>121-530</td> <td>05440</td> </tr> <tr> <td>20-260</td> <td>10130</td> <td>12-530</td> <td>03441</td> <td>101-530</td> <td>05530</td> </tr> <tr> <td>15-260</td> <td>09173</td> <td>10-530</td> <td>03530</td> <td></td> <td></td> </tr> </tbody> </table>							Former	Ident Code	Former	Ident Code	Former	Ident Code	20-130	12065	12-260	07216	151-260	10173	15-130	12086	10-260	06260	121-260	10216	12-130	12108	20-530	05265	101-260	10260	10-130	12130	15-530	04353	121-530	05440	20-260	10130	12-530	03441	101-530	05530	15-260	09173	10-530	03530		
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15-260	09173	10-530	03530																																																					
		Liquid end materials: PP Polypropylene PC PVC TT carbon reinforced PTFE SS Stainless steel																																																						
		Seal material: A Viton® E EPDM T PTFE Viton® is a registered trademark of DuPont Dow Elastomers																																																						
		Diaphragm version: T Standard diaphragm with PTFE face																																																						
		Valve springs: 0 Without valve springs 1 With 2 valve springs (Hastelloy C4, 1 psig)																																																						
		Hydraulic connection: A PVC clamp nut & insert B PP clamp nut & insert C PVDF clamp nut & insert D SS clamp nut & insert																																																						
		Labeling: 0 Standard, with logo																																																						
		Motor mount: 0 Add-on pump, no motor 4 Without motor, with NEMA 56C flange																																																						
		Enclosure Rating: 0 Standard																																																						
		Stroke sensor: 0 Without stroke sensor 1 With stroke sensor (retrofitable) Namur signal																																																						
		Stroke length adjustment: 0 Manual (standard) 1 With 3P stroke positioning motor, 230V, 50/60 Hz 2 With 3P stroke positioning motor, 115V, 50/60 Hz C With stroke positioning motor, 0-20 mA, 50/60 Hz D With stroke positioning motor, 4-20 mA, 50/60 Hz																																																						
MTMa	H	03530	PC	A	T	0	A	0	4	0	0	0																																												

ProMinent® Meta MTMaH

Diaphragm metering pumps



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Select appropriate motor horsepower from the Table of Capacities below. Motor is not included with pump. A pressure relief valve is required on the discharge line. Capacities are given for standard 4-pole AC motor at 60 Hz (nominal 1725 RPM). For performance at 50 Hz, multiply rated capacity by 5/6.

Liquid End	Suction lift		NPSH		Max. suction pressure	
	ft	(m)	psig	(bar)	psig	(bar)
130	16.0	(5)	5.8	(0.4)	40.6	(2.8)
260	9.8	(3)	8.7	(0.6)	18.8	(1.3)
530	6.5	(2)	10.0	(0.7)	7.0	(0.5)

ProMinent Meta MTMa Diaphragm Pumps - 4mm Stroke Length

New pump version	Old pump version	Maximum back-pressure		Capacity at maximum backpressure		Stroking rate at 1725 RPM	Recommended Motor Horsepower	Suction and Discharge		Shipping weight ** (w/o motor)	
		psig	(bar)	U.S. GPH	(L/h)			valve thread	in. DN	lbs.	(kg)
12065*	20-130	145	(10)	20.6	(78)	15.0	86	1/2	3/4 20	25	(11.5)
12086*	15-130	145	(10)	27.5	(104)	15.0	115	1/2	3/4 20	25	(11.5)
12108*	12-130	145	(10)	34.3	(130)	15.0	144	1/2	3/4 20	25	(11.5)
12130*	10-130	145	(10)	41.2	(156)	15.0	172	1/2	3/4 20	25	(11.5)
10130	20-260	145	(10)	41.2	(156)	30	86	1/2	3/4 20	25	(11.5)
09173	15-260	131	(9)	54.9	(208)	30	115	1/2	3/4 20	25	(11.5)
07216	12-260	109	(7.5)	68.7	(260)	30	144	1/2	3/4 20	25	(11.5)
06260	10-260	87	(6)	82.4	(312)	30	172	1/2	3/4 20	25	(11.5)
05265	20-530	72.5	(5)	84	(318)	61.3	86	1/2	1 25	33	(15.0)
04353	15-530	65.3	(4.5)	112	(424)	61.3	115	1/2	1 25	33	(15.0)
03441	12-530	50.8	(3.5)	140	(530)	61.3	144	1/2	1 25	33	(15.0)
03530	10-530	43.5	(3)	168	(637)	61.3	172	1/2	1 25	33	(15.0)
10173	151-260	145	(10)	54.9	(208)	30	115	3/4	3/4 20	25	(11.5)
10216	121-260	145	(10)	68.7	(260)	30	144	3/4	3/4 20	25	(11.5)
10260	101-260	145	(10)	82.4	(312)	30	172	3/4	3/4 20	25	(11.5)
05440	121-530	72.5	(5)	140	(530)	61.3	144	3/4	1 25	33	(15)
05530	101-530	72.5	(5)	168	(636)	61.3	172	3/4	1 25	33	(15)

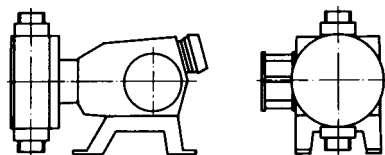
*Maximum 174 psig (12 bar) for 316 stainless steel liquid ends. **Add 10 lbs. for 130/260 SS liquid ends and 20 lbs. for 530 SS liquid ends.

ProMinent Meta MTMa Diaphragm Pumps - NEW 6mm Stroke Length

Liquid End											
10200	260	145	(10)	62	(236)	44.8	88	3/4	3/4 20	25	(11.5)
10263	260	145	(10)	83	(314)	44.8	117	3/4	3/4 20	25	(11.5)
10330	260	145	(10)	103	(392)	44.8	146	3/4	3/4 20	25	(11.5)
04400	530	58	(4)	125	(473)	89.7	88	3/4	1 25	33	(15.0)
04527	530	58	(4)	166	(629)	89.7	117	3/4	1 25	33	(15.0)
03662	530	43.5	(3)	207	(785)	89.7	146	3/4	1 25	33	(15.0)

Note: Motor not included -- please refer to the High Flow Accessories section.

ProMinent® Meta MTMaA - Diaphragm metering pump add-on modules and materials



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The ProMinent Meta MTMaA add-on pump modules can be combined with any Meta MTMa or MTKa main pump to form duplex or triplex pumps at rated pressure. Additional add-on pumps can be multiplexed at reduced pressure. If ordered as such, multiplex pumps will be provided completely assembled. A baseplate is recommended, but not required. Meta pumps can be multiplexed in the field; all the necessary components are supplied with the add-on pump.

The Meta MTMaA add-on modules may be driven by any Meta MTMa or MTKa main pump; **however, the stroking frequency of the main pump will determine the stroking frequency of the add-on pump.** For example, a Meta MTMaA10130 with a PVC liquid end may be connected to a Meta MTMa 12065 with a teflon liquid end, and the resulting frequency of both pumps will be 86 spm. Use the appropriate stroking rate in selecting an add-on module.

Duplex pump strokes are 180° out of phase, with no additional horsepower requirement. Contact ProMinent for brake horsepower requirements for two or more add-on pumps and for reduced pressure ratings for three or more add-ons. Each add-on pump has its own independent stroke length control and may be automatically controlled independent of the main pump using a stroke positioning system. A pressure relief valve is required on the discharge line.

Media-contacted Materials

4mm	6mm	Liquid End	Suction/Discharge Valves	Seals	Valve balls
PPE	PPT	Polypropylene	Polypropylene/PVDF*	EPDM/PTFE*	Borosilicate Glass
PCA/PCE	PCT	PVC	PVC/PVDF*	Viton® A/EPDM/PTFE*	Borosilicate Glass
TTT	TTT	carbon reinforced PTFE	carbon reinforced PTFE/PVDF*	PTFE	Ceramic
SST	SST	316 stainless steel	316 stainless steel	PTFE	316 stainless steel

*Materials for MTMa with 6mm stroke length.
DEVELOPAN diaphragm is EPDM with PTFE face on media-contact side.

Base frame for Meta MTMa

A base frame recommended but not required if Meta main pumps are to be combined with add-on pumps:

	Part No.
Base frame for one main pump and one add-on pump	803897
Base frame for one main pump and two add-on pumps	803898
Base frame for one main pump and three add-on pumps	803899

Identity code: Meta MTKa Packed-Plunger Metering Pumps

Series:
MTKa Meta packed-plunger metering pumps
Version a

H	Main drive																																																																
A	Add-on drive																																																																
		Pump type: 21606 10213 05425 24006 11313 06025 16208 07617 04033 22508 10617 05633 12910 06122 03241 21610 10222 05441 10812 05126 02749 21012 09926 05249			Cross Reference Conversion Table from former version to new ident code version <table border="1"> <thead> <tr> <th>Former</th> <th>Ident Code</th> <th>Former</th> <th>Ident Code</th> <th>Former</th> <th>Ident Code</th> </tr> </thead> <tbody> <tr> <td>20-12.5</td> <td>21606</td> <td>20-25</td> <td>10213</td> <td>20-50</td> <td>05425</td> </tr> <tr> <td>201-12.5</td> <td>24006</td> <td>201-25</td> <td>11313</td> <td>201-50</td> <td>06025</td> </tr> <tr> <td>15-12.5</td> <td>16208</td> <td>15-25</td> <td>07617</td> <td>15-50</td> <td>04033</td> </tr> <tr> <td>151-12.5</td> <td>22508</td> <td>151-125</td> <td>10617</td> <td>151-50</td> <td>05633</td> </tr> <tr> <td>12-12.5</td> <td>12910</td> <td>12-25</td> <td>06122</td> <td>12-50</td> <td>03241</td> </tr> <tr> <td>121-12.5</td> <td>21610</td> <td>121-25</td> <td>10222</td> <td>121-50</td> <td>05441</td> </tr> <tr> <td>10-12.5</td> <td>10812</td> <td>10-25</td> <td>05126</td> <td>10-50</td> <td>02749</td> </tr> <tr> <td>101-12.5</td> <td>21012</td> <td>101-25</td> <td>09926</td> <td>101-50</td> <td>05249</td> </tr> </tbody> </table>							Former	Ident Code	Former	Ident Code	Former	Ident Code	20-12.5	21606	20-25	10213	20-50	05425	201-12.5	24006	201-25	11313	201-50	06025	15-12.5	16208	15-25	07617	15-50	04033	151-12.5	22508	151-125	10617	151-50	05633	12-12.5	12910	12-25	06122	12-50	03241	121-12.5	21610	121-25	10222	121-50	05441	10-12.5	10812	10-25	05126	10-50	02749	101-12.5	21012	101-25	09926	101-50	05249
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101-12.5	21012	101-25	09926	101-50	05249																																																												
		SS	Liquid end materials: Stainless steel																																																														
			T	Seal material: PTFE																																																													
				S	Packed-plunger version: Standard packed-plunger, stainless steel, ceramic coated																																																												
					0	Valve springs: Without valve springs																																																											
					1	With 2 valve springs (Hastelloy C4, 1 psig)																																																											
						0	Hydraulic connection: Standard (in accordance with technical data)																																																										
							0	Labeling: Standard, with logo																																																									
								0	Motor mount: Add-on pump, no motor																																																								
								4	Without motor, with NEMA 56C flange																																																								
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											1	With 3P stroke positioning motor, 230V, 50/60Hz																																																					
											2	With 3P stroke positioning motor, 115V, 50/60Hz																																																					
											C	With stroke positioning motor, 0-20 mA 115V, 50/60Hz																																																					
											D	With stroke positioning motor, 4-20 mA 115V, 50/60Hz																																																					

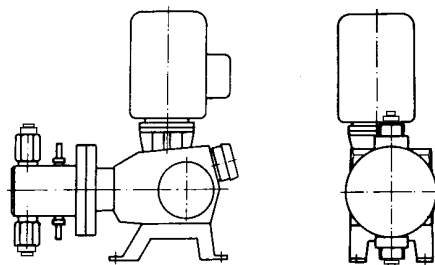
*Note: MTKa pump does not include motor.
Select 1/2 HP or 3/4 HP motor from catalog, High Flow Accessories, section.*

MTKa H 10222 SS T S 0 0 0 4 0 0 0

ProMinent® Meta MTKaH

Packed-plunger metering pumps

1453/4



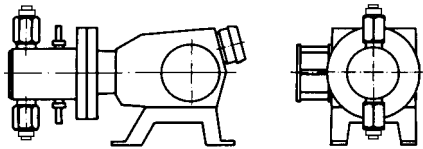
Select appropriate motor horsepower from table of capacities below. **Motor is not included with pump.** The maximum suction lift of all Meta packed-plunger pumps is about 13 feet (4 m); NPSH is 7 psig (0.5 bar). Maximum allowable suction pressure is about 50% of rated working pressure. A pressure relief valve is required on the discharge line. Capacities are given for standard 4-pole AC motor at 60 Hz (nominal 1725 RPM). For performance at 50 Hz, multiply rated capacity by 5/6.

ProMinent Meta MTKaH packed-plunger type metering pumps

New pump version	Old pump version	Maximum back-pressure		Capacity at maximum backpressure		Stroking rate at 1725 RPM		Recommended Motor Horsepower	Suction and Discharge Conn. FNPT		Shipping weight w/o motor	
		psig	(bar)	U.S. GPH	(L/h)	mL/stroke	Strokes/min.	HP	in.		lbs.	(kg)
21606	20-12.5	3132	(216)	1.9	(7.3)	1.42	86	1/2	1/4		30	(13.5)
24006	201-12.5	3480	(240)	1.9	(7.3)	1.42	86	3/4	1/4		34	(15)
16208	15-12.5	2349	(162)	2.5	(9.8)	1.42	115	1/2	1/4		30	(13.5)
22508	151-12.5	3262	(225)	2.5	(9.8)	1.42	115	3/4	1/4		34	(15)
12910	12-12.5	1870	(129)	3.2	(12.2)	1.42	144	1/2	1/4		30	(13.5)
21610	121-12.5	3132	(216)	3.2	(12.2)	1.42	144	3/4	1/4		34	(15)
10812	10-12.5	1566	(108)	3.8	(14.7)	1.42	172	1/2	1/4		30	(13.5)
21012	101-12.5	3045	(210)	3.8	(14.7)	1.42	172	3/4	1/4		34	(15)
10213	20-25	1479	(102)	4.0	(15.6)	3.01	86	1/2	1/4		30	(13.5)
11313	201-25	1644	(113)	4.0	(15.6)	3.01	86	3/4	1/4		34	(15)
07617	15-25	1109	(76)	5.4	(20.8)	3.01	115	1/2	1/4		30	(13.5)
10617	151-25	1541	(106)	5.4	(20.8)	3.01	115	3/4	1/4		34	(15)
06122	12-25	888	(61)	6.8	(26.0)	3.01	144	1/2	1/4		30	(13.5)
10222	121-25	1479	(102)	6.8	(26.0)	3.01	144	3/4	1/4		34	(15)
05126	10-25	740	(51)	8.2	(31.2)	3.01	172	1/2	1/4		30	(13.5)
09926	101-25	1438	(99)	8.2	(31.2)	3.01	172	3/4	1/4		34	(15)
05425	20-50	782	(54)	7.7	(29.5)	5.71	86	1/2	3/8		30	(13.5)
06025	201-50	869	(60)	7.7	(29.5)	5.71	86	3/4	3/8		34	(15)
04033	15-50	587	(40)	10.3	(39.4)	5.71	115	1/2	3/8		30	(13.5)
05633	151-50	815	(56)	10.3	(39.4)	5.71	115	3/4	3/8		34	(15)
03241	12-50	469	(32)	12.9	(49.3)	5.71	144	1/2	3/8		30	(13.5)
05441	121-50	782	(54)	12.9	(49.3)	5.71	144	3/4	3/8		34	(15)
02749	10-50	391	(27)	15.6	(59.2)	5.71	172	1/2	3/8		30	(13.5)
05249	101-50	761	(52)	15.6	(59.2)	5.71	172	3/4	3/8		34	(15)

Note: Ratings based on a 1725 rpm motor. Motor not included -- please refer to the High Flow Accessories section.

ProMinent® Meta MTKaA - Packed-plunger metering pump add-on modules and materials



1454/4

The ProMinent Meta MTKaA add-on pump modules can be combined with any Meta MTKa or MTMa main pump to form duplex or triplex pumps at rated pressure. Additional add-on pumps can be multiplexed at reduced pressure. If ordered as such, multiplex pumps will be provided completely assembled. A baseplate is recommended, but not required. Meta pumps can be multiplexed in the field; all the necessary components are supplied with the add-on pump.

The Meta MTKaA add-on modules may be driven by any Meta MTKa or MTMa main pump; **however, the stroking frequency of the main pump will determine the stroking frequency of the add-on pump.** For example, a Meta MTKaA 10213 with stainless steel liquid end may be connected to a Meta MTKa 21606 with stainless steel liquid end, and the resulting frequency of both pumps will be 86 spm. Use the appropriate stroking rate in selecting an add-on module.

Duplex pump strokes are 180° out of phase, with no additional horsepower requirement. Contact ProMinent for brake horsepower requirements for two or more add-on pumps, and for reduced pressure ratings for three or more add-ons. Each add-on pump has its own independent stroke length control, and may be automatically controlled independent of the main pump using a stroke positioning system. A pressure relief valve is required on the discharge line.

Media-contacted Materials

	<u>Liquid End</u>	<u>Suction/Discharge Connectors</u>	<u>Seals</u>	<u>Packing Spring</u>	<u>Valve balls</u>
SST	316 stainless steel	316 stainless steel	PTFE	Hastelloy C	Ceramic

ProMinent® Meta

Spare Parts

Description	Part No.
Spare Parts Kits and Liquid ends	

Complete liquid ends include pump head, valves, mounting screws, diaphragm and backplate. Spare parts kits include:

Standard kit for PP, TT and PVC material versions:

- 1 Pump diaphragm
- 1 Suction valve, complete
- 1 Discharge valve, complete
- 2 Valve balls
- 1 Set of seals (complete w/O-rings & ball-seat discs)

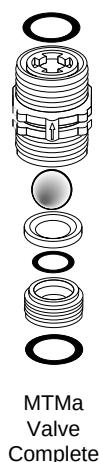
Standard kit for SS (316 stainless steel) version:

- 1 Pump diaphragm
- 2 Valve balls
- 1 Set of seals (complete w/sleeve rings & ball-seat discs)

Standard kit for MTKa version:

- 1 Pump diaphragm
- 4 Valve balls
- 4 Ball-seat discs
- 2 PTFE/graphite piston packing rings
- 2 Piston guides
- 14 Flat seals
- 2 O-rings

Note: Union nut and NPT inserts are not included in the spare parts kit.



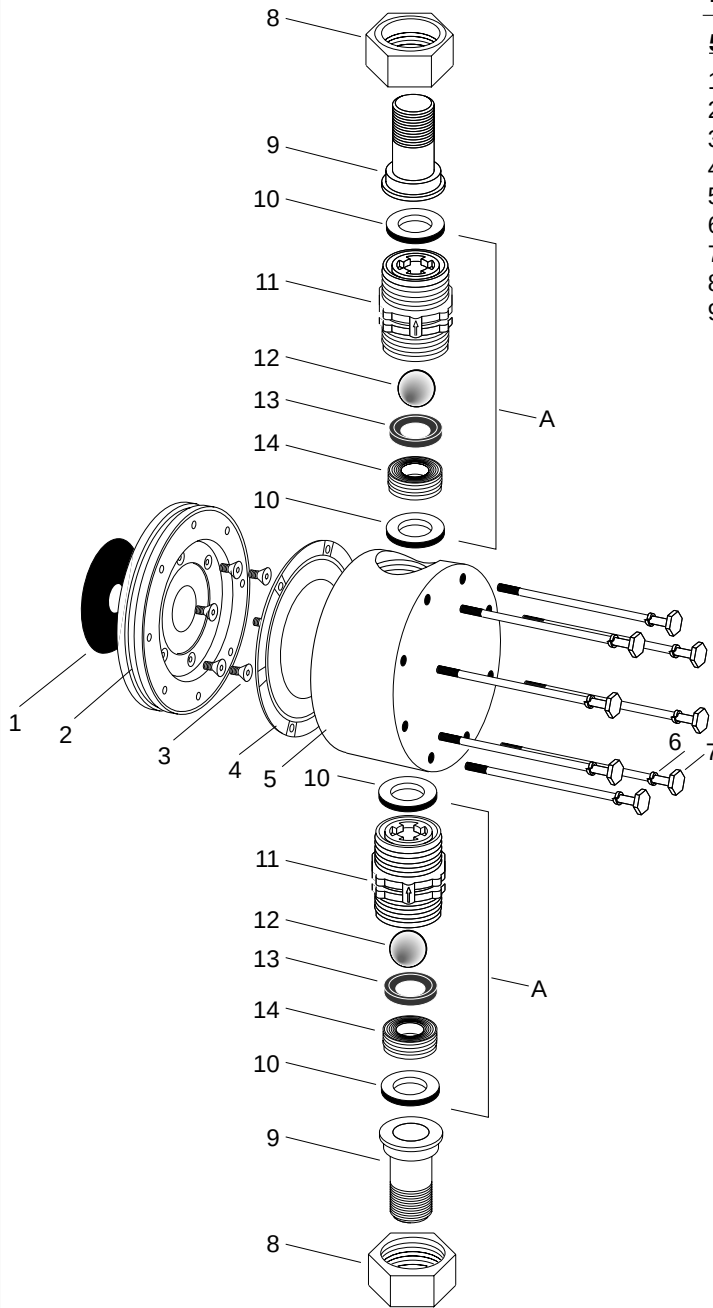
Liquid End Version	Material Code	Complete Liquid End	Spare Parts Kit	Valve Complete	Diaphragm
Meta MTMaH/MTMaA					
130 (For pump versions 12065, 12086, 12108 & 12130)	PCA	910402	910454	803703	811470
	PCE	7910402	7910454	7803703	811470
	PPE	910401	910451	803701	811470
	TTT	910403	910457	803705	811470
	SST	910404	910474	803707	811470
	SST	910404	910460*	803707	811470
260 (For pump versions 10130, 09173, 07216, 06260, 10173, 10216, 10260, 10200, 10263 & 10330)	PCA	910408	910455	803703	811471
	PCE	7910409	7910455	7803703	811471
	PPE	910407	910452	803701	811471
	TTT	910409	910458	803705	811471
	SST	910410	910475	803707	811471
	SST	910410	910461*	803707	811471
	†PPT 6 mm	7910407	1001570	792518	811471
	†PCT 6 mm	7910408	1001570	792518	811471
530 (For pump versions 05265, 04253, 03441, 03530, 05540, 05530, 04400, 04527, 03662, & 03790)	PCA	910414	910456	803704	811472
	PCE	7910415	7910456	7803705	811472
	PPE	910413	910453	803702	811472
	TTT	910415	910459	803706	811472
	SST	910416	910476	803708	811472
	SST	910416	910462*	803708	811472
	††PPT 6 mm	7910413	1001568	740615	811472
	††PCT 6 mm	7910414	1001568	740615	811472

*SS complete with 2 spare valves

†For pump versions 10200, 10263, 10333

††For pump versions 04400, 04527, 03662

Liquid End Version	Material Code	Complete Liquid End	Spare Parts Kit	Valve Complete Suction (Spare valves only)	Valve Complete Discharge	Packing set
Meta MTKaH/MTKaA						
12.5 (For pump versions 10812, 21012, 27606, 24006, 16208, 22508, 12190 & 21610)	SS	910420	910470	803792	803793	485401
25 (For pump versions 10213, 11313, 07617, 10617, 06122, 10222, 05126 & 09926)	SS	910421	910471	803792	803793	485402
50 (For pump versions 05425, 06025, 04033, 05633, 03241, 05441, 02749 & 05249)	SS	910422	910472	803794	803795	485403

EXPLODED VIEW

Description	Qty.	Part No.
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530 SS1/SS2 liquid end complete	1	910416
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1	safety diaphragm	1	485149
2	backplate	1	810221
3	counter sunk screw M6 x 20	6	465236
4	DEVELOPAN diaphragm	1	811472
5	dosing head body only FM-530 SS	1	810642
6	washer (lock)	8	462456
7	bolt M6 x 80 (316 SS)	8	468166
8	clamping nut DN25 SS	2	357624
9	NPT insert 1" Male SS	2	7358610

A valve complete DN25 SS1/SS2	*2	803708
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10	cover ring DN25	2	483986
11	valve body DN25 SS	1	104204
12	valve ball 25mm SS	1	404247
13	ball seat disc DN25 Teflon	1	803665
14	ball seat bushing DN25 SS	1	104205

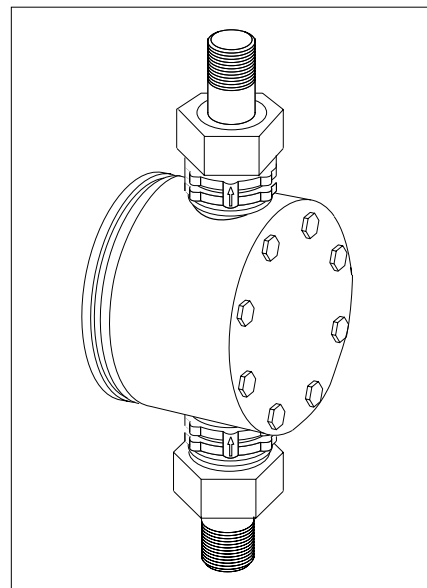
* Meta valves complete are used *as both* suction and discharge valves. Quantities reflect # of components in *each* valve.

Spare Parts Kit SS1 (w/o valves)	1	910476
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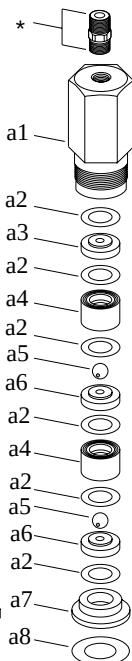
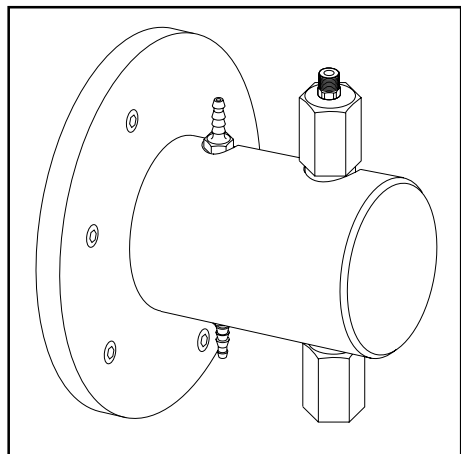
4	DEVELOPAN diaphragm	1	811472
12	valve ball 25mm SS	2	404247
13	ball seat disc DN25 Teflon	2	803665

Spare Parts Kit SS2	1	910462
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A	valve complete DN25 SS	2	803708
4	DEVELOPAN diaphragm	1	811472
12	valve ball 25mm SS	2	404247
13	ball seat disc DN25 Teflon	2	803665



#MET3SS1-1/99NA

**Description****Qty. Part No.****12.5 SS HK liquid end complete****1 910420.9**

1	screw M6 x 16	6	468083.1
2	spring washer	12	462456.5
3	flange d145 x 15 (HK)	1	803763.2
4	screw M6 x 20	6	468084.9
5	screw M5 x 16	4	465114.7
6	spring washer	4	462411.0
7	guide ring d12 SS	1	803765.7
8	guide ring d12 PTFE	1	485446.9
9	piston cpl. d12	1	1000586
10	packing ring (HK 12.5) PTFE	1	485456.8
11	O-ring 18 x 2 Viton	1	481022.2
12	flushing ring d12	1	803764.0
13	packing set 12-22-25 Teflon	1	485401.4
14	disc d12 SS	1	803766.5
15	spring	1	469466.7
16	dosing head body only (FK 12.5)	1	810670.0
17	tube nozzle PVC	1	358206.1
*	Hex Nipple 1/4" MNPT (316 SS)	2	7740931

A dis. valve 12.5 SS HK**1 803793.9**

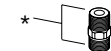
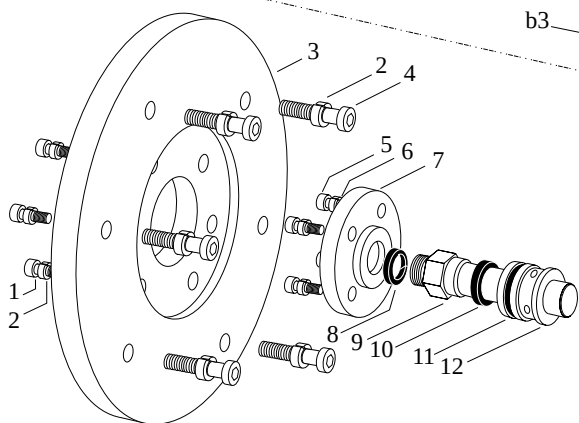
a1	valve body 12.5 SS	1	803773.1
a2	gasket 21.5 x 15 x 1 PTFE	6	483909.8
a3	guide disc 9.5 SS HK	1	104208.4
a4	valve insert SS HK	2	803775.6
a5	valve ball 9.2mm Ceramic	2	404281.8
a6	ball seat disc 9.5 SS HK	2	803774.9
a7	insert washer SS HK	1	1005097
a8	gasket 27.5 x 16 x .5 Teflon	1	1005096

B suct. valve 12.5 SS HK**1 803792.1**

b1	gasket 27.5 x 16 x .5 Teflon	1	1005096
b2	insert washer SS HK	1	1005097
b3	gasket 21.5 x 15 x 1 PTFE	6	483909.8
b4	guide disc 9.5 SS HK	1	104208.4
b5	valve insert SS HK	2	803775.6
b6	valve ball 9.2mm Ceramic	2	404281.8
b7	ball seat disc 9.5 SS HK	2	803774.9
b8	valve body 12.5 SS	1	803773.1

Spare Parts Set 12.5 SS HK**1 910470.4**

8	guide ring d12 PTFE	1	485446.9
9	piston cpl. d12	1	1000586
10	packing ring (HK 12.5) PTFE	1	485456.8
11	O-ring 18 x 2 Viton	1	481022.2
13	packing set 12-22-25 Teflon	1	485401.4
a2	gasket 21.5 x 15 x 1 PTFE	12	483909.8
a5	valve ball 9.2mm Ceramic	4	404281.8
a6	ball seat disc 9.5 SS HK	4	803774.9
a8	gasket 27.5 x 16 x .5 Teflon	2	1005096



#MET5SS-9/6/01

((THIS IS A MASTER, EDIT FOR SPECIFIC APPLICATION))

PROMINENT FLUID CONTROLS, INC. - Meta HM (for flow rates from 5 to 208 gph / head)

SECTION _____ - CHEMICAL METERING PUMPS

1.1 APPLICATION

- A. Quantity: _____
- B. Chemical Service: _____
- C. Tag. Nos.: _____
- D. Capacity (US gallons per hour per head) _____
- E. No. of heads per pump: _____
- F. Backpressure (psig): _____

1.2 DESCRIPTION

- A. The chemical metering pump(s) shall be a ((CHOOSE ONE: simplex / duplex / triplex)) motor-driven, reciprocating, mechanically-actuated diaphragm type. The pump shall include motor, oil-lubricated gear reducer and cam-and-spring drive mounted in an aluminum housing, coated with a chemical resistant two-part epoxy finish. The pump shall be of a modular design to accommodate add-on pumps powered by a single electric motor.
- B. The chemical metering pump manufacturer shall provide a two year warranty on the pump drive and one year warranty on the pump liquid end, including diaphragm and O-rings.
- C. The pump shall be fully tested to meet rated flow and pressure by the manufacturer.
- D. The power supply shall be ____ VAC, ____ Hz, ____ phase.
- E. The liquid end shall be physically separated from the drive unit by back plate with weep hole creating an air gap. An elastomer shaft wiper seal shall prevent contamination of the solenoid if the primary diaphragm fails. The diaphragm shall be nylon-reinforced EPDM with PTFE-faced fluid contact surface.

1.3 LIQUID END ((SELECT ONE))

- The liquid end shall be glass-filled polypropylene. The suction and discharge valves shall be polypropylene with EPDM or PTFE seals and borosilicate glass valve balls.
- The liquid end shall be PVC. The suction and discharge valve shall be constructed of PVC with Viton® or 3 EPDM seals, or PTFE with PVDF seals and borosilicate glass valve balls.
- The liquid end shall be carbon-filled PTFE. The suction and discharge valve shall be constructed of carbon-loaded PTFE with PTFE or PVDF seals and ceramic valve balls.
- The liquid end shall be 316 stainless steel. The suction and discharge valve shall be constructed of 316 stainless steel with PTFE seals and ceramic valve balls.

1.4 CONTROL

- A. Stroke length control for each pump ((SELECT ONE))
 - shall be adjustable manually by means of a stroke length knob, in increments of 1%, from 0% to 100% of stroke length.
 - shall be adjustable by means of a stroke positioning motor from 0% to 100% of stroke length. The stroke positioning motor shall feature visual stroke length indication and manual/ external selector switch for local control via toggle switch or external control in proportion to a 4-20 mA signal.

- B. Stroke frequency control ((SELECT ONE))
- shall be fixed at the pump's maximum stroke rate. Pump shall include a ((0.5 / 0.75)) HP, TEFC, four-pole AC motor.
 - shall be controlled by DC SCR drive system for stroke frequency control. The SCR shall include a wall mountable NEMA 4 enclosure with on/off switch, manual/external switch and speed potentiometer. The DC voltage output to the motor shall be proportional to the potentiometer setting in manual mode, or proportional to an external 4-20 mA signal in external mode. Pump shall include a ((0.5 / 0.75)) HP, TENV, 1725 RPM brushless DC motor.
 - shall be controlled by DC SCR drive system for stroke frequency control. The SCR shall include a wall mountable NEMA 4 enclosure with on/off switch, manual/external switch and membrane keypad and digital display spannable to show RPM, percent output or flow rate. The actual motor speed, as measured by motor-mounted tachometer, shall be proportional to the rate setting in manual mode, or proportional to an external 4-20 mA signal in external mode. Pump shall include a ((0.5 / 0.75)) HP, TENV, 1725 RPM brushless DC motor with flange-mounted tach.

1.5 ACCEPTABLE MANUFACTURER

- A. ProMinent Fluid Controls, model _____
- B. Or pre-approved equal.

1.6 ACCESSORIES ((ALL ARE OPTIONAL AND MAY BE INCLUDED AS SEPARATE ITEMS OR AS COMPONENTS OF A PUMP STAND))

- A. The pump shall be mounted on a ((CHOOSE ONE: Fiberglass Reinforced Plastic / Stainless Steel)) support stand suitable for wall, floor or top-of-tank mounting, and including the following accessories pre-piped and factory tested:
- B. A foot valve and strainer shall be provided with each pump.
- C. An injection check valve shall be provided with each pump.
- D. A diaphragm failure detector shall be provided to ((open/close)) a contact in the event of diaphragm failure.
- E. An adjustable-pressure, diaphragm-type back pressure/antisiphon valve shall be provided with each metering pump.
- F. An in-line, adjustable-pressure, diaphragm-type pressure relief valve shall be provided with each metering pump.
- G. An air-charged, bladder-type pulsation dampener shall be provided with each metering pump.
- H. A clear PVC calibration column with FNPT fittings top and bottom shall be provided with each pump.

END OF SECTION