

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: 12065* 04353 10200 12086* 03441 10263 12108* 03530 10330 12130* 10173 09395** 10130 10216 04400 09173 10260 04527 07216 05440 03662 06260 05530 03790** 05265 * for PC, PP, TT versions, max. 145 psig (10 bar)			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> ** models 09395 and 03790 run at 1450 RPM maximum			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		
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																																												

PP	Liquid end materials: Polypropylene PVC carbon reinforced PTFE Stainless steel
PC	
TT	
SS	

A	Seal material: Viton® EPDM PTFE Viton® is a registered trademark of DuPont Dow Elastomers
E	
T	

T	Diaphragm version: Standard diaphragm with PTFE face
---	--

0	Valve springs: Without valve springs With 2 valve springs (Hastelloy C4, 1 psig)
1	

A	Hydraulic connection: PVC clamp nut & insert PP clamp nut & insert PVDF clamp nut & insert SS clamp nut & insert
B	
C	
D	

0	Labeling: Standard, with logo
---	---

0	Motor mount: Add-on pump, no motor Without motor, with NEMA 56C flange
4	

0	Enclosure Rating: Standard
---	--------------------------------------

0	Stroke sensor: Without stroke sensor With stroke sensor (retrofitable) Namur signal
1	

0	Stroke length adjustment: Manual (standard) With 3P stroke positioning motor, 230V, 50/60 Hz With 3P stroke positioning motor, 115V, 50/60 Hz With stroke positioning motor, 0-20 mA, 50/60 Hz With stroke positioning motor, 4-20 mA, 50/60 Hz
1	
2	
C	
D	

MTMa H 03530 PC A T 0 0 0 4 0 0 0

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:

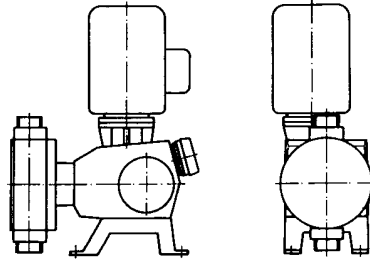
<i>Pump type:</i>	Mechanically actuated diaphragm (diaphragm threaded directly to reciprocating shaft)		
<i>Diaphragm:</i>	PTFE-faced EPDM with steel core		
<i>Max. stroke length:</i>	0.157" (4 mm) - All except 6 mm types listed below. 0.236" (6 mm) - Pump types 10200, 10263, 10330, 09395, 04400, 04527, 03662 and 03790.		
<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 of construction options and maximum fluid temperatures:</i>		<u>Continuous</u>	<u>Short Term</u>
	PP = polypropylene	176°F (80°C)	212°F (100°C)
	PC = PVC	113°F (45°C)	140°F (60°C)
	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)

ProMinent® Meta MTMaH Diaphragm metering pumps

1436/4



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	mL/stroke	Stroking rate at 1725 RPM	Recommended Motor Horsepower	Suction and Discharge		Shipping weight **	
		psig (bar)	U.S. GPH (L/h)		Strokes/min.	HP	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.

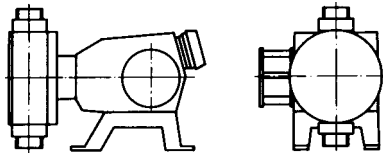
ProMinent Meta MTMa Diaphragm Pumps - NEW 6mm Stroke Length

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)	
09395†	260	131 (9)	104 (395)	44.8	147	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)	
03790†	530	43.5 (3)	208 (790)	89.7	147	3/4	1	25	33	(15.0)	

† Types 09395 and 03790 may only be operated with a 1450 rpm or less motor (50 Hz). Capacities shown are operating at 1450 rpm.

Note: Ratings, except types 09395 and 03790, based on a 1725 rpm motor. Motor not included -- please refer to the High Flow Accessories section.

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



1437/4

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 frequency of the main pump will determine the 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

	Liquid End	Suction/Discharge Valves	Seals	Valve balls
PP	Polypropylene	Polypropylene/PVDF*	EPDM/PTFE*	Duran 50*
PC	PVC	PVC/PVDF*	Viton® A/PTFE*	Duran 50*
TT	carbon reinforced PTFE	carbon reinforced PTFE/PVDF*	PTFE	Ceramic
SS	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
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																																																												
	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																																																									
								0	Enclosure Rating: Standard																																																								
									0	Stroke sensor: Without stroke sensor (standard)																																																							
									1	With stroke sensor (retrofittable) Namur signal																																																							
										0	Stroke length adjustment: Manual (standard)																																																						
										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																																																						

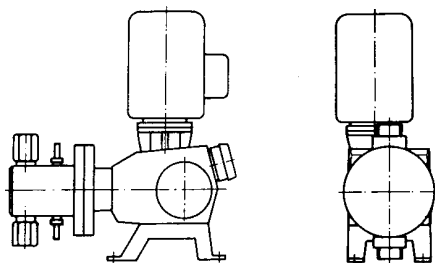
*Note: MTKa pump does not include motor.
Select 1/2 HP or 3/4 HP motor from catalog, High Flow Accessories, section.*

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.

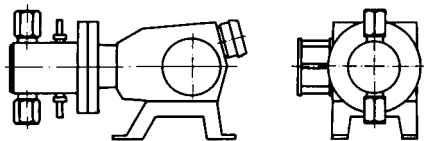
ProMinent Meta MTKaH packed-plunger type metering pumps

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)			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 frequency of the main pump will determine the 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 oxide