Metering Pump Series GM/GB

Main Technical Characteristics

- Flowrate up to 1800L/H
- Pressure up to 12 bar
- Suction lift: up to 3 m water
- Maximum suction pressure: 2 bar
- Accuracy: ± 2% of rated flow from 10% to 100% stroke
- Maximum temperature of pumped liquid: 40°C

Features & Benefits

Liquid End

- Mechanical actuated diaphragm design
- Eliminate contour plates,easy for material pass
- PVC, PVDF & 316SS liquid end material
- High viscolity,slurry application
- Self-cleaning suction/discharge check valve

Drive End

- Variable eccentric drive mechanism for smooth sinusoidal flow
- Rugged construction designed to withstand tough environments
- Hard-wearing ball bearings to make pump work more stably
- Oil bath lubrication for all of drive components
- Lockable micrometer stroke, adjustment can be adjusted while pump is running or stopped

Automatic Capacity Control Options

Electrical capacity controller: Accept external control signal to adjust the stroke length

- Power supply: 220V-50Hz, single phase
- Input signal: 4-20mA analog signal
- Output signal: 4-20mA/1-5V analog signal for record display and control system

Varipulse® controller: ON/OFF control the three phase motor to adjust the flowrate

- Power supply: 200-240V/50/60Hz, single phase
- Input signal: 4-20mA analog signal / pulse signal / manual

Variable frequency controller: Accept external control signal to adjust the stroke speed

- Power supply: 220V-50Hz, single phase / 380V-50Hz, three phase
- Input signal: 4-20mA analog signal

Applications

Municipal, industrial water and wastewater, swimming pools and other water treatment process

MILTON ROY

World's Leading Metering Pump Manufacturer

Options

- Double diaphragm
  Double diaphragm with pressure gauge & switch
- Stroke counter transducer
  PNP output / NPN output / relay output

GM with E-STROKE electrical capacity controller

Material of liquid end

GM0002~GM0050

Liquid end	Head	Valve body	Valve seat	Ball	Diaphragm	Seal	Connectors
PVC	PVC	PVDF	PVDF	Ceramis	PTFE	Viton	PVC
PVDF	PVDF	PVDF	PVDF	Ceramis	PTFE	PTFE	PVDF
316SS	316SS	316SS	316SS	316SS	PTFE	Viton	316SS

GM0090~GM0500

Liquid end	Head	Valve body	Valve seat	Ball	Diaphragm	Seal	Connectors
PVC	PVC	PVC	PVC	Glass	PTFE	Viton	PVC
PVDF	PVDF	PVDF	PVDF	Ceramis	PTFE	PTFE	PVDF
316SS	316SS	316SS	316SS	316SS	PTFE	Viton	316SS

GB0080~GB1500

Liquid end	Head	Valve body	Valve seat	Ball	Diaphragm	Seal	Connectors
PVC	PVC	PVC	PVC	Ceramis	PTFE	Viton	PVC
PVDF	PVDF	PVDF	PVDF	Ceramis	PTFE	PTFE	PVDF
316SS	316SS	316SS	316SS	316SS	PTFE	Viton	316SS

GB1800

Liquid end	Head	Valve body	Valve plate	Spring	Diaphragm	Seal	Connectors
PVC	PVC	PVC	PVC	NS333; Hastelloy C	PTFE	Viton	PVC
PVDF	PVDF	PVDF	PVDF	NS333; Hastelloy C	PTFE	PTFE	PVDF
316SS	316SS	316SS	316SS	NS333; Hastelloy C	PTFE	Viton	316SS

Accessories

- System accessories: filter, calibration column, pulsation dampener, safety valve and back pressure valve
- Safety valve is the necessary option.
- GM002~GM0050 PVC/PVDF liquid end,pumps supplied with injection nozzle, foot valve, 6m hose, except for viscolity liquid end)

Standard motor characteristics

- Power supply: 380V-50Hz, three phase/220V-50Hz, single phase
- Enclosure of protection: IP55
- Insulation: class F
- Other motor options: Explosion proof motor, 60Hz motor
- All motors comply with the International Electrotechnical Association IEC standard or the National Electrical Commission NEC standards

G SERIES PRODUCT CODE SELECTION

Code

Series	Capacity	Liquid End	Connection	Motor	Capacity Control	Base Plate	Option

Series

Code	Description
GM	GM Series MAD Metering Pump

Code	Description
GB	GB Series MAD Metering Pump

Capacity

Code	LE Type	LPH@Pmax	SPM	Pmax (bar)	Motor Power
GM0002	1#	2.25	36	12	0.25kW(1)
GM0005		4.5	72		
GM0010		9	144		
GM0025	2#	25	72		
GM0050		50	144	10	
GM0090	3#	85	72	7	
GM0120		115	72		
GM0170		170	144		
GM0240		235	144		
GM0330	4#	315	144	5	0.25kW 0.37kW(1)
GM0400		400	144		
GM0500(2)		500	180		

Code	LE Type	LPH @Pmax	SPM	Pmax (bar)	Motor Power
GB0080	40#	82	36	10	0.55kW 0.75kW(1)
GB0180		167	72		
GB0250		237	102		
GB0350		334	144		
GB0450(2)		416	180		
GB0500	60#	464	144	7	
GB0600(2)		583	180		
GB0700	80#	656	102	3.5	
GB1000		946	144		
GB1200(2)		1200	180		0.75kW
GB1500(2)		1500	180	3	
GB1800(2)		1800	206		

(1) The power could match both constant & variable speed application, but varible speed motor is not included as default configuration.
(2) Do not use with 60Hz motors.

Liquid End

Code	Description
P	PVC Liquid End
S	316 Liquid End
T	PVDF Liquid End
B	Black PP liquid end.Use for GM with sunproof outdoors.
V	High Viscidity (PVC LE with spring loaded in check valves,ball/seat in 316SS)
K	Slurry(GM2#/3#/4#: 316SS LE; GB: PVC LE)

Code	Description
M	Mix(GM:PVC LE)
F	PVC Liquid End, used for Sodium Hypochlorite,acid, alkali (Only available for GB series)
Z	Special material liquid end.(Consult with factory, and describe the requirements in purchase order.)

Connection

Code	Description	GM0002~0050				GM0090~0500				GB0080~0450		
		PVC	PVDF	PP	316	PVC	PVDF	PP	316	PVC	PVDF	316
	Suction(S)/Discharge(D)	S/D	S/D	S/D	S/D	S/D	S/D	S/D	S/D	S/D	S/D	S/D
P	NPT	1/4"M	1/4"M	1/4"M	1/2"F	1/2"F	1/2"F	1/2"F	1/2"F	1/2"F	1/2"F	1/2"F
Q	Pipe	DN15	-----	-----	-----	DN15	-----	-----	-----	-----	-----	-----
R	Hose Pipe 6X12	6X12	6X12(*)	-----	-----	-----	-----	-----	-----	-----	-----	-----
L(1)	PE Pipe	3/8"X1/2"(2)		-----	-----	-----	-----	-----	-----	-----	-----	-----
H	GM High Viscosity Application	15X23 9X12	-----	-----	-----	DN15	-----	-----	-----	-----	-----	-----
X	Others, Consult with Factory, and describe the requirements in purchase order.											

Code	Description	GB0500~0600			GB0700~1200						GB1500~1800		
		PVC	PVDF	316	PVC		PVDF		316		PVC	PVDF	316
	Suction(S)/Discharge(D)	S/D	S/D	S/D	S	D	S	D	S	D	S/D	S/D	S/D
P	NPT	1"F	1"F	1"M	1-1/2"F	1"F	1-1/2"F	1"F	1-1/2"M	1"M	1-1/2"F	1-1/2"F	1-1/2"M
X	Others, Consult with Factory, and describe the requirements in purchase order.												

Note:Standard configuration is bold letter marked in shadom. For V/ K/ M/ F liquid end, connection depend on material LE.
(*) The standard material of hose pipe is PVC for code R, consult factory for PVDF pipe if required.
(1) The Max.work pressure for PE pipe is 10 bar.
(2) The standard material of pipe is PE for code L, consult factory for PVDF pipe if required.

G SERIES PRODUCT CODE SELECTION

Motor

Code	Description (GM) Nameplate in Chinese	Code	Nameplate in English
1	250W,IEC71,4P,3-50-220/380V,IP55/F/TEFC	A	250W,IEC71,4P,3-50-220/380V,IP55/F/TEFC
2	Without motor, but NEMA56C connection and standard test.	2	Without motor, but NEMA56C connection and standard test.
3	250W,IEC71,4P,3-50-380V,IP55/F/TEFC/ExdIIBT4	C	250W,IEC71,4P,3-50-380V,IP55/F/TEFC/ExdIIBT4
4	370W,IEC71,4P,3-50-220/380V,IP55/F/TEFC	D	370W,IEC71,4P,3-50-220/380V,IP55/F/TEFC
5	250W, IEC71,4P,1-50-220V,IP55/F/TEFC	E	250W, IEC71,4P,1-50-220V,IP55/F/TEFC
6	250W,IEC71,4P,3-50-200/400,3-60-230/460,IP55/F/TEFC	F	250W,IEC71,4P,3-50-200/400,3-60-230/460,IP55/F/TEFC
7	370W,IEC71,4P,3-50-200/400,3-60-230/460,IP55/F/TEFC	G	370W,IEC71,4P,3-50-200/400,3-60-230/460,IP55/F/TEFC
8	-----	8	-----
9(1)	370W,IEC71,4P,3-50-220/380V,IP55/F/TEFC/ExdIIBT4	H	370W,IEC71,4P,3-50-220/380V,IP55/F/TEFC/ExdIIBT4
9(5)	Without motor,but with IEC71 connection and standard test.	9(5)	Without motor,but with IEC71 connection and standard test.
9(7)	370W,IEC71,4P,1-60-230V,IP55/F/TEFC	I	370W,IEC71,4P,1-60-230V,IP55/F/TEFC
9(8)	-----	9(8)	-----
9	Others, Consult with Factory	9	Others, Consult with Factory
Code	**Description (GB)Nameplate in Chinese**	**Code**	Nameplate in English
1	550W,IEC71,4P,3-50-220/380V,IP55/F/TEFC	A	550W,IEC71,4P,3-50-220/380V,IP55/F/TEFC
2	Without motor, but NEMA56C connection and standard test.	2	Without motor, but NEMA56C connection and standard test.
3	550W,IEC80,4P,3-50-220/380V,IP55/F/TEFC/ExdIIBT4	C	550W,IEC80,4P,3-50-220/380V,IP55/F/TEFC/ExdIIBT4
4	750W,IEC80,4P,3-50-220/380V,IP55/F/TEFC	D	750W,IEC80,4P,3-50-220/380V,IP55/F/TEFC
5	750W,IEC80,4P,3-50-220/380,IP55/F/TEFC/ExdIIBT4	E	750W,IEC80,4P,3-50-220/380,IP55/F/TEFC/ExdIIBT4
6	550W,IEC80,4P,3-50-200/400V,3-60-230/460,IP55/F/TEFC	F	550W,IEC80,4P,3-50-200/400V,3-60-230/460,IP55/F/TEFC
7	750W,IEC80,4P,3-50-200/400V,3-60-230/460,IP55/F/TEFC	G	750W,IEC80,4P,3-50-200/400V,3-60-230/460,IP55/F/TEFC
8	550W,IEC80,4P,3-50-220/380V,IP55/F/TEFC	H	550W,IEC80,4P,3-50-220/380V,IP55/F/TEFC
0	Without motor,but with IEC71 connection and standard test	0	Without motor,but with IEC71 connection and standard test.
9(8)	Without motor,but with IEC80 connection and standard test	9(8)	Without motor,but with IEC80 connection and standard test.
9	Others, Consult with Factory	9	Others, Consult with Factory

Note: Single phase motor can't be used with Varipulse® controller.

Capacity Control

Code	Description (GM)	Description (GB)		Remark
M	Manual Adjustment	M	Manual Adjustment	Standard Configuration
N	MRIS E-STROKE, 4-20mA, 220VAC-1Ph	N	MRIS E-STROKE, 4-20mA, 220VAC-1Ph	
C	MRIS E-STROKE, 4-20mA, 220VAC-1Ph(customized color)	C	MRIS E-STROKE, 4-20mA, 220VAC-1Ph(customized color)	
A	MRIS E-STROKE, 4-20mA, 115VAC-1Ph	A	MRIS E-STROKE, 4-20mA, 115VAC-1Ph	
D	MRIS E-STROKE, 4-20mA, 115VAC-1Ph(customized color)	D	MRIS E-STROKE, 4-20mA, 115VAC-1Ph(customized color)	
U	MRE STEGMANN, 4-20mA, 220VAC-1Ph	W	ACC,Waterproof ; 24VDC ; 110V - 230V 1 phase 50/60Hz	
G	MRE STEGMANN, 4-20mA, 115VAC-1Ph	X	ACC Ex - proof ; 24VDC ; 110V - 230V 1 phase 50/60Hz	
F*	Frequency Inverter, 3PH,AC,0.75KW/380V-480V	I	ACC,Waterproof ; 24VDC ; 110V - 230V 1 phase 50/60Hz(customized color)	
T*	Varipulse® Controller and E-STROKE ECC(1)	J	ACC Ex - proof ; 24VDC ; 110V - 230V 1 phase 50/60Hz(customized color)	
P*	Varipulse® Controller (220VAC-1Ph-50Hz) (1)	F*	Frequency Inverter,3PH,AC,0.75KW/380V-480V	
Note:	** Varipulse controller and Frequency Inverter are not assembled on the pump*			

Base Plate

Code	Description	Remark
N	N/A (Select N when double diaphragm with pressure switch option has been ordered)	Standard Configuration
1	N/A (Select N when double diaphragm with pressure switch option has been ordered)-Pump with customized color	
Y	YES	
9	Base plate-Pump with customized color	

Option

Code	Description	Remark
N	N/A	Standard Configuration
A	Stroke Counter transducer	
B	Double Diaphragm With Pressure Gauge(1)	
C	Double Diaphragm With Pressure Switch(With Baseplate)(*)	
D	Double Diaphragm With Pressure Gauge & Switch(With baseplate)(*)(1)	
E	Double Diaphragm With Pressure Gauge	
F	Double Diaphragm With Pressure Gauge & Switch(With baseplate)(*)	
X	Others,Consult with factory.	Describe Special Config in Order

(*) Code C,D ,F has included base plate in the structure, please choose code "N" for the Base Plate in such an application.

(1) Code B or D Pressure Gauge has CMC (China Metrology Certification) Logo With Chinese Characters.

G SERIES - TECHNICAL

1. SPECIFICATION

PUMP TYPE	MECHANICAL ACTUATED DIAPHRAGM
LE MATERIAL	316SS/PVC/PVDF/PP
ACCURACY	±1.5 % at Rated Flow
TURN DOWN RATIO	10:1
TEMPERATURE OF FLUID	-10℃ to 50℃ (Metallic Liquid End) 10℃ to 50℃ (Plastic Liquid End)
TYPE OF CAPACITY CONTROL	Manual / Electronic / VSD
CAPACITY ADJUSTMENT DESIGN	Variable Eccentric Type

2.VISCOSITY CAPABILITIES

GM SERIES

50Hz DRIVER (1500rpm)			60Hz DRIVER (1750rpm)		
STROKING SPEED (SPM)	**OTHER L/E cp (Max)**	**HIGH VISCOSITY L/E cp (Max)**	**STROKING SPEED (SPM)**	**OTHER L/E cp (Max)**	**HIGH VISCOSITY L/E cp (Max)**
180	100	500	—	—	—
144	250	1250	173	120	600
72	700	3500	86	600	3000
36	700	3500	43	700	3500

GB SERIES

50Hz DRIVER (1500rpm)			60Hz DRIVER (1750rpm)		
STROKING SPEED (SPM)	**OTHER L/E cp (Max)**	**HIGH VISCOSITY L/E cp (Max)**	**STROKING SPEED (SPM)**	**OTHER L/E cp (Max)**	**HIGH VISCOSITY L/E cp (Max)**
206	200	500	—	—	—
180	100	500	—	—	—
144	220	1250	173	120	600
102	700	2500	124	400	1600
72	1100	3500	86	900	3000
36	2400	3500	43	2000	3500

3. GM/GB STROKING LENGTH

MODEL	STROKING LENGTH
GM0002～GM0010	4mm
GM0025～GM0090, GM0170	6mm
GM0120, GM0240, GM0330	8mm
GM0400～GM0500	10mm
GB0080～GB1200	12mm
GB1500, GB1800	15mm

4.LUBRICATION CHART

MODEL	AMBIENT TEMPERATURE	Recommend Gear Oil						Optional
		GEAR OIL CODE	VISCOSITY		DENSITY @ 15.6℃	FLASH POINT	VOLUME(L) /PUMP	GEAR OIL CODE 2
			mm²/s@40℃	mm²/s@100℃	kg/L	℃	(L)	
GM/GB (Except GB1500/1800)	-5℃～50℃	Mobilgear 600 XP 220	220	19.5	0.89	255	0.65/GM	Great Wall L-CKD220
	-10℃～-5℃	Mobilgear 600 XP 68	68	9.2	0.89	225	2.8/GB	——
GB1500/1800	-5℃～50℃	Mobilgear 600 XP 460	460	29.9	0.89	275	2.8	Great Wall L-CKD460
	-10℃～-5℃	Mobil SHC 634	440	45.8	0.85	250		Great Wall 4407(460)

G SERIES - TECHNICAL

5.MOTOR MOUNT

Series	Mounting Method	Motor Flange		Motor Rotation
GM	Direct Coupled (B5)	0.25kW,0.37kW	IEC71	Facing Towards Motor Fan - Clock Wise Rotation
GB		0.55kW Standard Motor	IEC71	
		0.55kW Exproof Motor	IEC80	
		0.75kW Standard Motor	IEC80	
		1.1kW Standard Motor	IEC80	

6.BEARING LIST

Series	Bearing Type	Part Number	Item Number	Brand
GM	Single Row Bearing	S61116	340	SKF
		4099994000	140	SKF
GB	Ball Bearing	S4090116040	340	Timken
	Single Row Bearing	4099994000	140	SKF

7. OPERATION REQUIREMENT

7.1 Suction Condition Requirements

Series	Minimum Internal Pressure	Maximum Suction Pressure	Suction Lift	Suction Piping	
				Minimum Diameter Recommended	Maximum Length Recommended
GM	0.83bara (12.6 psia)	1 barg	3 m (Water)	3/4"	2 m Increase diameter if exceed 2m
GB0080-GB0600			2.5 m (Water)	1"	
GB0700-GB1800				1-1/2"	

8.DIAPHRAGM

8.1 Material PTFE

8.2 Double Diaphragm Detection Pressure Gauge

9. DISCHARGE PRESSURE LIMITATION FOR PVC LIQUID END

Fluid Temperature	Maximum Discharge Pressure (bar)
50 °C	4
40 °C	6
30 °C	8
20 °C	10

10.PACKING WEIGHT AND DIMENSION

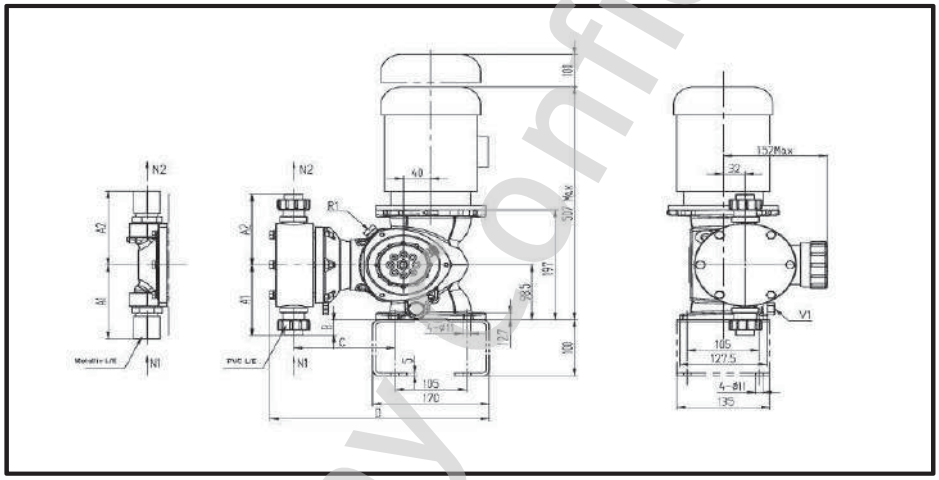
Pump with Motor		Export Boxing				
		Nett Weight (kg)	Gross Weight (kg)	Packing Dimension (mm) Length	Width	Height
GM0002-0500	316	21	25	420	320	510
	PVC/PVDF	15	19	420	320	510
	With E-STROKE	E-STROKE (Weight 2.8Kg)		480	380	590
GB0080-0450	316	36	42	480	380	590
	PVC/PVDF	29	35	480	380	590
GB0500-0600	316	44	50	615	415	710
	PVC/PVDF	29	35	480	380	590
GB0700-1800	316	44	50	615	415	710
	PVC/PVDF	31	37	480	380	590
GB0080-1800	With ACC	ACC (Weight 4.8Kg)		665	515	760

G SERIES - TECHNICAL

11. Dimension

GM Series

Pump Size	Material	Connection				B	C	D
		N1	A1	N2	A2			
GM0002 ~ GM0010	Plastic	6 x 12	108	6 x 12	108	9.5	104	250
		DN15	90	DN15	90	-8.5	104	250
		1/4" NPTM	72	1/4" NPTM	72	-26.5	104	250
	High Viscosity	15 x 23	84	9 x 12	105	-14.5	104	250
	Metallic	1/2" NPTF	102	1/2" NPTF	102	3.5	104	250
GM0025 ~ GM0050	Plastic	6 x 12	108	6 x 12	108	9.5	104	250
		DN15	90	DN15	90	-8.5	104	250
		1/4" NPTM	72	1/4" NPTM	72	-26.5	104	250
	High Viscosity	15 x 23	86	9 x 12	108	-12.5	104	250
	Metallic	1/2" NPTF	102	1/2" NPTF	102	3.5	104	250
GM0090 ~ GM0500	Plastic	1/2" NPTF	127	1/2" NPTF	127	28.5	148	320
		DN15	127	DN15	127	28.5	148	320
	High Viscosity	DN15	127	DN15	154	28.5	148	320
	Metallic	1/2" NPTF	131	1/2" NPTF	131	32.5	148	315



GB Series

Pump Size	Material	Connection				B	C	D
		N1	A1	N2	A2			
GB0080 ~ GB0450	Plastic	1/2" NPTF	125	1/2" NPTF	125	2	63	333
	High Viscosity	1/2" NPTF	125	1/2" NPTF	154	2	63	333
	Metallic	1/2" NPTF	130	1/2" NPTF	130	8	63	333
GB0500 ~ GB0600	Plastic	1" NPTF	144	1" NPTF	144	21	72	351
	High Viscosity	1" NPTF	144	1" NPTF	185	21	72	351
	Metallic	1" NPTM	181	1" NPTM	181	58	76	360
GB0700 ~ GB1200	Plastic	1-1/2" NPTF	188	1" NPTF	182	66	94	370
	High Viscosity	1-1/2" NPTF	188	1" NPTF	223	65	94	370
	Metallic	1-1/2" NPTM	200	1" NPTM	188	77	98	383
GB1500	Plastic	1-1/2" NPTF	188	1-1/2" NPTF	188	65	94	370
	High Viscosity	1-1/2" NPTF	188	1-1/2" NPTF	232	65	94	370
	Metallic	1-1/2" NPTM	200	1-1/2" NPTM	200	77	98	383
GB1800	Plastic	1-1/2" NPTF	211	1-1/2" NPTF	211	88	94	370
	Metallic	1-1/2" NPTM	205	1-1/2" NPTM	205	82	98	383