

1.1 Solenoid-Driven Metering Pumps

1.1.3

Solenoid-Driven Metering Pump gamma/ X

gamma/ X – the proven best-seller intelligently extended

Capacity range 2.3 – 45 l/h, 25 – 2 bar



The solenoid-driven diaphragm metering pump gamma incorporates a wealth of eXcellent ingenuity! With integrated pressure measurement, it ensures the smooth running of your metering process. The gamma/ X is ideal for all metering work involving liquid media.

The new solenoid-driven diaphragm metering pump gamma/ X is user-friendly and has an outstandingly long service life, just like its predecessor. An ingenious solenoid control measures the back pressure and protects the system from overload. This technology makes a pressure sensor superfluous, meaning that operating safety can be significantly increased: no additional parts come into contact with the feed chemical, there are no additional sealing surfaces and no electronic components come into contact with the feed chemical. Whether the metering volume fluctuates or hydraulic failures affect the metering process – the gamma/ X keeps everything at your fingertips.

It independently ensures a trouble-free metering process and should the pump ever need maintenance its service module draws attention to this.

Your benefits

- Simple adjustment of the capacity directly in l/h
- Direct input of the required final concentration with volume-proportional metering tasks in concentration mode
- Integrated pressure measurement and display for greater safety during commissioning and in the process
- Virtually wear-free solenoid drive, overload-proof and economical
- Suitable for continuous micro-metering from approx. 1 ml/h thanks to the regulated solenoid drive
- Detection of hydraulic malfunctions, such as gas in the dosing head, and no or too high back pressure ensures smooth processes
- Bluetooth interface for simple parameter configuration and access to diagnostic data using the Android gamma/ X app (optional)
- Adaptation to existing signal transducers by external control via potential-free contacts with pulse step-up and step-down
- External control via 0/4-20 mA standard signal with adjustable assignment of signal value to stroke rate (optional)
- Integrated 1-month timer for timed metering tasks
- Guaranteed metering by means of automatic bleeding
- Connection to process control systems via bus interfaces, such as PROFIBUS®, PROFINET, CAN Bus and others on request



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Technical Details

- Illuminated LC display and 3-LED display for operating, warning and error messages, visible from all sides.
- Factor with external contact control 99:1 - 1:99.
- Batch operation with max. 99,999 strokes/start pulse.
- Stroke rate adjustment in 1 stroke/h increments from 1 – 12,000 strokes/h.
- Continuous electronic stroke length adjustment from 1 - 100 % (recommended 30 - 100 %).
- Connector for 2-stage level switch.
- Available material combinations: PP, PVDF, clear acrylic, PTFE and stainless steel.
- Special dosing head designs for gaseous and high-viscosity media.
- Degree of protection IP 66 and/or NEMA 4X indoor.
- Optional 4-20 mA output for remote transmission of stroke length and stroke rate.
- Universal power supply unit 100 - 230 V, 50/60 Hz.
- Optional 230 V relay module, can also be retrofitted easily and securely.
- Optional 24 V combined relay, can also be retrofitted easily and securely.

Field of application

- Can be integrated into automated processes and used in all industries.
- The pump can work as a control unit with the timer, for example in cooling water treatment.



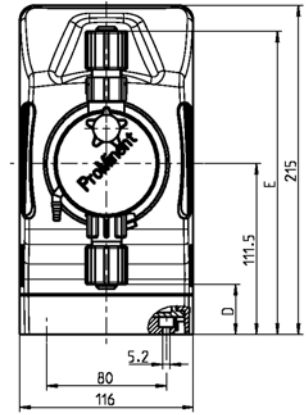
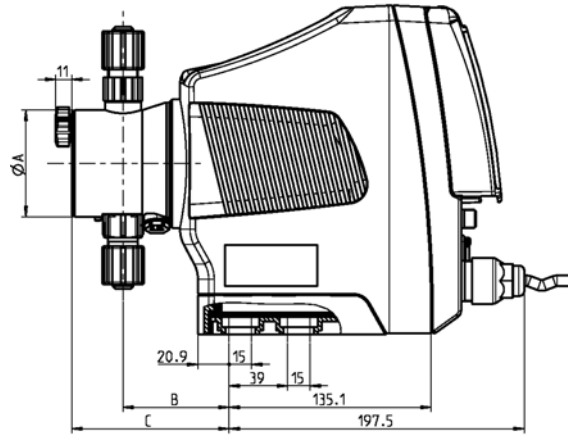
1.1 Solenoid-Driven Metering Pumps

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**Dimensional drawing of gamma/ X
Material version PPT2**

Type	Ø A	B
0245	110	76
0424, 0220	90	76
0715, 0414	90	74
1009, 0708	90	74
1604	70	71
1602	70	71

Type	C	D	E
0245	-	14	209
0424, 0220	110	24	202
0715, 0414	107	24	202
1009, 0708	108	24	202
1604	106	32	198
1602	106	32	198



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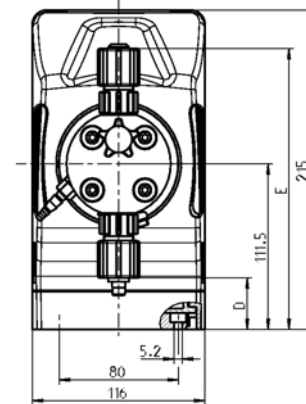
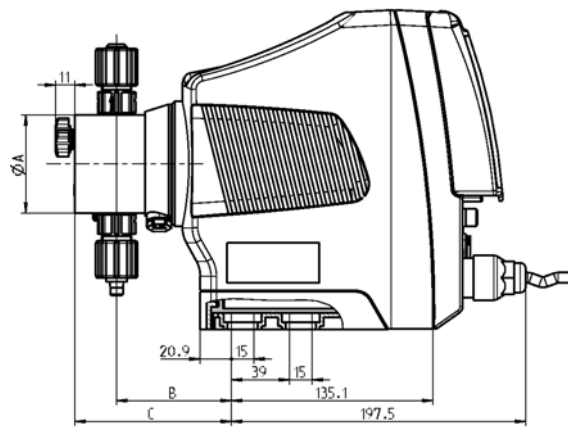
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Dimensional drawing of gamma/ X, Material design PPT – dimensions in mm

**Dimensional drawing of gamma/ X
Material version NPT2**

Type	Ø A	B
0245	110	76
0424, 0220	90	76
0715, 0414	90	76
1009, 0708	90	74
1604, 2504	70	77
1602	70	77

Type	C	D	E
0245	105	14	210
0424, 0220	104	23	200
0715, 0414	104	23	200
1009, 0708	102	23	200
1604, 2504	105	33	191
1602	105	33	191



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Dimensional drawing of gamma/ X, Material design NPT – dimensions in mm

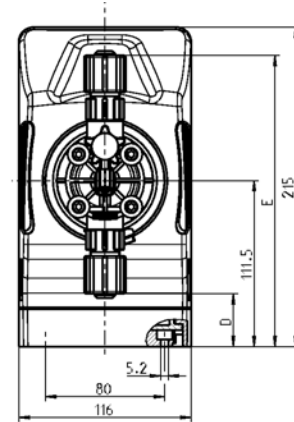
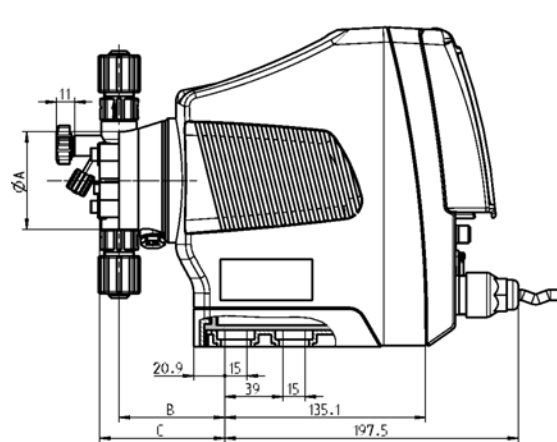


1.1 Solenoid-Driven Metering Pumps

Dimensional drawing of gamma/ X
Material version PVT2

Type	Ø A	B
0245	110	76
0424, 0220	90	79
0715, 0414	90	73
1009, 0708	90	75
1604	70	71
1602	70	71

Type	C	D	E
0245	-	14	209
0424, 0220	90	25	203
0715, 0414	90	25	203
1009, 0708	92	25	203
1604	84	36	196
1602	84	36	196



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Dimensional drawing of gamma/ X, Material design PVT – dimensions in mm



1.1 Solenoid-Driven Metering Pumps

Technical Data

Pump type	Delivery rate at max. back pressure			Stroke rate Strokes/min	Connection size ø x i ø mm	Suction lift m WC	Shipping weight	
	bar	l/h	ml/stroke				PP, NP, PV, TT kg	SS kg
gamma/ X								
GMXa 1602	16	2.3	0.19	200	6 x 4	6.0**	3.6	4.1
GMXa 1604	16	3.6	0.30	200	6 x 4	5.0**	3.6	4.1
GMXa 0708	7	7.6	0.63	200	8 x 5	4.0**	3.7	5.0
GMXa 0414	4	13.5	1.13	200	8 x 5****	3.0**	3.7	5.0
GMXa 0220	2	19.7	1.64	200	12 x 9	2.0**	3.7	5.0
GMXa 2504	25	3.8	0.32	200	8 x 4***	4.0**	4.9	5.5
GMXa 1009	10	9.0	0.75	200	8 x 5	3.0**	5.1	6.5
GMXa 0715	7	14.5	1.21	200	8 x 5****	3.0**	5.1	6.5
GMXa 0424	4	24.0	2.00	200	12 x 9	3.0**	5.1	6.5
GMXa 0245	2	45.0	3.70	200	12 x 9*****	2.0**	5.2	7.0
gamma/ X metering pumps with self-bleeding dosing head without bypass								
GMXa 1602	10	0.9	0.08	200	6 x 4	1.8**	3.6	-
GMXa 1604	10	1.6	0.13	200	6 x 4	1.8**	3.6	-
GMXa 0708	7	5.7	0.48	200	8 x 5	1.8**	3.7	-
GMXa 0414	4	12.0	1.00	200	8 x 5	1.8**	3.7	-
GMXa 0220	2	17.4	1.45	200	12 x 9	1.8**	3.7	-
GMXa 1009	10	6.0	0.50	200	8 x 5	1.8**	5.1	-
GMXa 0715	7	12.9	1.08	200	8 x 5	1.8**	5.1	-
GMXa 0424	4	19.2	1.60	200	12 x 9	1.8**	5.1	-



gamma/ X metering pumps with dosing heads for high-viscosity media have a 10 – 20% lower capacity and are not self-priming. G 3/4-DN 10 connector with d 16-DN 10 hose nozzle.

- * The given performance data represents guaranteed minimum values, calculated using water as the medium at room temperature.
 - ** Suction lift with a filled dosing head and filled suction line, with a self-bleeding dosing head with air in the suction line
 - *** with stainless steel design 6 mm connector width
 - **** with stainless steel design 12 mm connector width
 - ***** with stainless steel design DN 10
- All data refers to water at 20 °C.

Materials in Contact With the Medium

	Dosing head	Suction/pressure connector	Ball seat	Seals	Balls
PPT	Polypropylene	PVDF	PVDF	PTFE	Ceramic
NPT	Clear acrylic	PVDF	PVDF	PTFE	Ceramic
PVT	PVDF	PVDF	PVDF	PTFE	Ceramic
TTT	PTFE with carbon	PTFE with carbon	Ceramic	PTFE	Ceramic
SST	Stainless steel material no. 1.4404	Stainless steel material no. 1.4404	Ceramic	PTFE	Ceramic

Metering reproducibility: ±2% when used according to information in the operating instructions

Permissible ambient temperature: -10 °C to +45 °C

Mean power consumption: 24/30 W

Degree of protection: IP 66, NEMA 4X, insulation class F



Scope of supply
Metering pump with mains cable, connector kit for hose/tube connector as per table.



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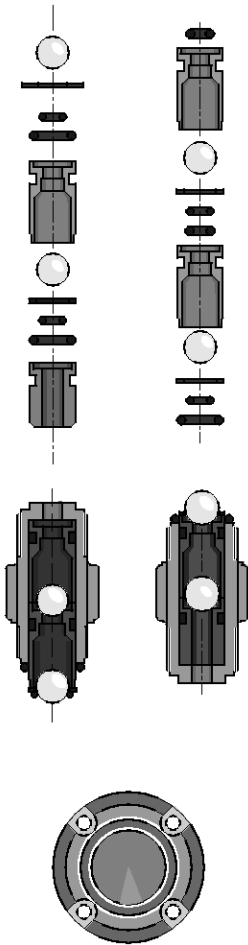
Identity Code Ordering System for Product Range gamma/ X, Version a

GMXa	Type	Capacity		bar		l/h	
		bar	l/h	bar	l/h	bar	l/h
	1602	16	2.3	0220	2	19.7	0715 7 14.5
	1604	16	3.6	2504	25	3.8	0424 4 24.0
	0708	7	7.6	1009	10	9.0	0245 2 45.0
	0414	4	13.5				
Liquid end/valve material							
	PP	Polypropylene/PVDF					
	NP	Clear acrylic/PVDF					
	PV	PVDF/PVDF					
	TT	PTFE/PTFE					
	SS	Stainless steel 1.4404/1.4404					
Seal/diaphragm material							
	T	PTFE/PTFE coated					
	F	FDA-compliant design, only for PV and SS					
Liquid end version							
	0	Non-bleed version, no valve spring only with NP, TT and SS and type 0245					
	1	Non-bleed version, with valve spring only with NP, TT and SS and type 0245					
	2	Bleed function, no valve spring only with PP, PV, NP not for type 0245					
	3	Bleed function, with valve spring only with PP, PV, NP not for type 0245					
	4	Version for highly viscous media only with PV, types 1604, 0708, 0414, 1009, 0715, 0424					
	7	self-bleeding without bypass, only for NPT and PVT, not for type 0245					
Hydraulic connections							
	0	Standard according to technical data					
	5	Discharge side connection for hose 12/6, suction side standard, only with materials PP, NP and PV					
	9	Discharge side connection for hose 10/4, suction side standard, only with materials PP, NP and PV					
Diaphragm rupture indicator							
	0	Without diaphragm rupture indicator					
	1	with diaphragm rupture indicator, optical sensor, not for type 0245					
Version							
	0	Standard					
Logo							
	0	with ProMinent® logo					
Power supply							
	U	100-230 V, ±10%, 50/60 Hz					
Cable and plug							
	A	2 m European	D	2 m USA			
	B	2 m Swiss	E	2 m Great Britain			
	C	2 m Australian	1	2 m, open-ended			
Relay, pre-set to							
	0	No relay					
	1	1 x changeover contact 230 V – 8 A, fault indicating relay N/C					
	4	2 x N/O 24 V – 100 mA, fault indicating relay N/C + pacing relay					
	C	1 x N/O 24 V – 100 mA, fault indicating relay N/C 1 + 4 – 20 mA output					
	F	with automatic bleed valve 230 V AC, not for pump type 0245					
	G	with automatic bleed valve 24 V DC and relay output, not for pump type 0245					
Accessories							
	0	No accessories					
	1	With foot valve and discharge valve, 2 m PVC suction tubing, 5 m PE delivery tube only with PP, PV and NP, not with PVT4					
Control version							
	0	Manual + external with pulse control					
	3	Manual + external with pulse control + analogue 0/4 - 20 mA					
	C	as 3 + CANopen*					
	D	as 3 + CAN open DULCOMARIN® II					
	E	as 3 + Profinet*					
	R	as 3 + PROFIBUS® DP interface M12					
	-	*No relay can be selected with these options.					
Metering monitor							
	0	Pulse signal input					
Remote stop							
	0	without Bluetooth					
	B	with Bluetooth					
Language							
	DE	German					
	EN	English					
	FR	French					
	ES	Spanish					



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Spare Parts Kit for gamma/ X

Spare parts kits for gamma/ X, consisting of:

- 1 diaphragm
- 1 suction valve assembly
- 1 discharge valve assembly
- 1 connector kit

Stainless steel version without suction valve assembly and without discharge valve assembly, with valve seats, seals and valve balls

Type	Wetted materials	Order no.
Type 1602	PVT, PPT, NPT	1023109
	PVF	1083550
	TTT	1001739
	SST	1001731
Type 1604 and Type 2504	PVT, PPT, NPT	1035332
	PVF	1083548
	PVT HV	1035342
	TTT	1035330
Type 0708 and Type 1009	SST	1035331
	PVT, PPT, NPT	1023111
	PVF	1083564
	PVT HV	1019067
Type 0414 and Type 0715	TTT	1001741
	SST	1001733
	PVT, PPT, NPT	1023112
	PVF	1083551
Type 0220 and Type 0424	PVT4	1019069
	TTT	1001742
	SST	1001734
	PVT, PPT, NPT	1051129
Type 0245	PVF	1083566
	PVT HV	1051134
	TTT	1051151
	SST	1051139
Type 0245	PVT, PPT, NPT	1051130
	PVF	1083567
	TTT	1051152
	SST	1074650
	SSF	1098649

Spare Parts Kits for Solenoid-Driven Metering Pump gamma/ X with Self-Bleeding Dosing Head

Spare parts kits for gamma/ X with self-bleeding dosing head, without bypass, consisting of:

- 1 diaphragm
- 1 suction valve assembly
- 1 discharge valve assembly
- 1 connector kit

Type	Wetted materials	Order no.
Type 1602	PVT7, NPT7	1047830
Type 1604	PVT7, NPT7	1047858
Type 0708 and Type 1009	PVT7, NPT7	1047832
Type 0414 and Type 0715	PVT7, NPT7	1047833
Type 0220 and Type 0424	PVT7, NPT7	1051111



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Spare Diaphragms for Solenoid-Driven Metering Pump gamma/ X

Type	Materials in contact with the medium	Order no.
Type 1602	all materials	1000246
Type 1604 and Type 2504	all materials	1034612
Type 0708 and Type 1009	all materials	1000248
Type 0414 and Type 0715	all materials	1000249
Type 0220 and Type 0424	all materials	1045456
Type 0245	all materials	1045443

Accessories

- Foot Valves for Low-Pressure Metering Pumps see page → 1-129
- Injection Valve for Low-Pressure Metering Pumps see page → 1-134
- Hoses and pipework for low-pressure metering pumps see page → 1-157
- Suction Lances, Suction Kit Without Level Switch see page → 1-178
- Connectors, fittings, connector kits, seals see page → 1-160

Spare Parts

- Custom Valve Balls/Valve Springs See page → 1-195

