

Pump Spare Parts & Accessories

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“Pump Spare Parts & Accessories” T.O.C.

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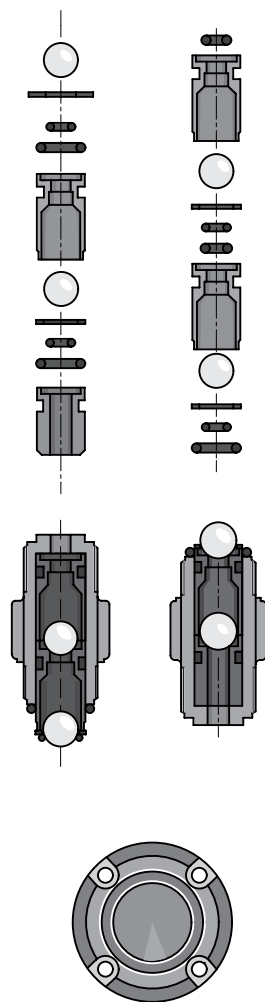
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Solenoid Pump Spare Parts

beta/a, concept b and gamma/L



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

PP, PC, PV, & NP Liquid Ends

1 Diaphragm
1 Suction Valve
1 Discharge Valve
2 Connector Sets
2 Valve Balls
1 Set O-rings

TT Liquid Ends

1 Diaphragm
1 Suction Valve
1 Discharge Valve
2 Connector Sets
2 Valve Balls
1 Set O-rings
2 Ball Seat Discs

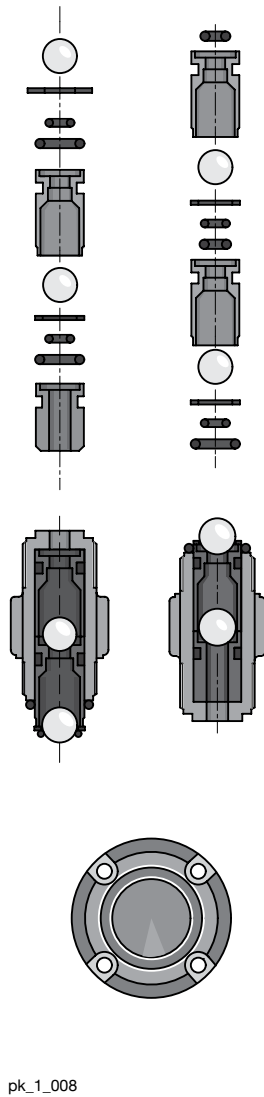
SS Liquid Ends

1 Diaphragm
4 Valve Balls
1 Set O-rings
4 Ball Seat Discs

Liquid End Version	Material Code	Complete Liquid End	Spare Parts Kit	Spare Valves Only (connector sets not included)		
				Suction	Discharge	Diaphragm
1000	PPE	1002057	1001644	792644	740350	1000244
	PPB	1002065	1001652	792646	740351	1000244
	PCE	1002365	1001713	792119	740349	1000244
	NPE	1002193	1001713	792119	740349	1000244
	PCB	1002358	1001721	792026	740348	1000244
	NPB	1002201	1001721	792026	740348	1000244
	TTT	1002345	1001737	809407	809406	1000244
	SST	1002557	1002549	809424	809423	1000244
	PVT	1023134	1023107	1023128	1023127	1000244
1601	PPE	1002058	1001645	792644	740350	1000245
	PPB	1002066	1001653	792646	740351	1000245
	PCE	1002366	1001714	792119	740349	1000245
	NPE	1002194	1001714	792119	740349	1000245
	PCB	1002359	1001722	792026	740348	1000245
	NPB	1002202	1001722	792026	740348	1000245
	TTT	1002346	1001738	809407	809406	1000245
	SST	1002558	1002550	809424	809423	1000245
	PVT	1023135	1023108	1023128	1023127	1000245
1602	PPE	1002059	1001646	792644	740350	1000246
	PPB	1002067	1001654	792646	740351	1000246
	PCE	1002367	1001715	792119	740349	1000246
	NPE	1002195	1001715	792119	740349	1000246
	PCB	1002360	1001723	792026	740348	1000246
	NPB	1002203	1001723	792026	740348	1000246
	TTT	1002347	1001739	809407	809406	1000246
	SST	1002559	1002551	809424	809423	1000246
	PVT	1023136	1023109	1023128	1023127	1000246
1005	PPE	1002060	1001647	792644	740350	1000247
	PPB	1002068	1001655	792646	740351	1000247
	PCE	1002368	1001716	792119	740349	1000247
	NPE	1002196	1001716	792119	740349	1000247
	PCB	1002361	1001724	792026	740348	1000247
	NPB	1002204	1001724	792026	740348	1000247
	PVT HV	1018072	1019066	1002267	1002267	1000247
	TTT	1002348	1001740	809407	809406	1000247
	SST	1002560	1002552	809424	809423	1000247
	PVT	1023137	1023110	1023126	1023125	1000247
0708	PPE	1002061	1001648	1001437	1001441	1000248
	PPB	1002069	1001656	1001436	1001440	1000248
	PCE	1002369	1001717	1001435	1001439	1000248
	NPE	1002197	1001717	1001435	1001439	1000248
	PCB	1002362	1001725	1001434	1001438	1000248
	NPB	1002205	1001725	1001434	1001438	1000248
	PVT HV	1018073	1019067	1002267	1002267	1000248
	TTT	1002349	1001741	809445	809444	1000248
	SST	1002561	1002553	809497	809496	1000248
	PVT	1023138	1023111	1023126	1023125	1000248
0413	PPE	1002062	1001649	1001437	1001441	1000249
	PPB	1002070	1001657	1001436	1001440	1000249
	PCE	1002370	1001718	1001435	1001439	1000249

Solenoid Pump Spare Parts

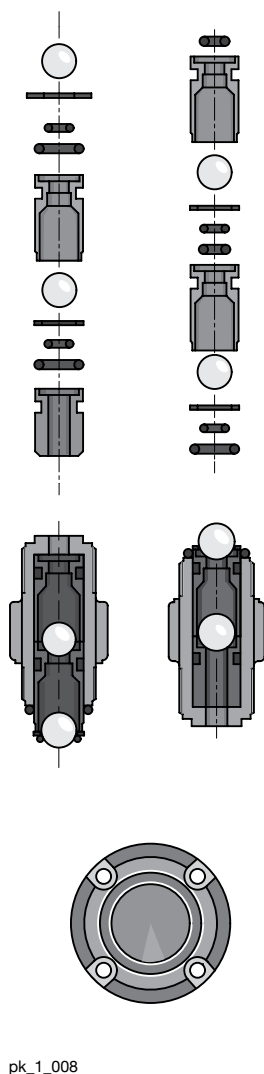
beta/a and gamma/L



Liquid End Version	Material Code	Complete Liquid End	Spare Parts Kit	Spare Valves Only (connector sets not included)		
				Suction	Discharge	Diaphragm
0413 (cont.)	NPE	1002198	1001718	1001435	1001439	1000249
	PCB	1002363	1001726	1001434	1001438	1000249
	NPB	1002206	1001726	1001434	1001438	1000249
	PVT HV	1018084	1019069	1002267	1002267	1000249
	TTT	1002350	1001742	809445	809444	1000249
	SST	1002562	1002554	809497	809496	1000249
	PVT	1023139	1023112	1023126	1023125	1000249
0220	PPE	1002063	1001650	1001437	1001441	1000250
	PPB	1002071	1001658	1001436	1001440	1000250
	PCE	1002371	1001719	1001435	1001439	1000250
	NPE	1002199	1001719	1001435	1001439	1000250
	PCB	1002364	1001727	1001434	1001438	1000250
	NPB	1002207	1001727	1001434	1001438	1000250
	PVT HV	1018085	1019070	1002267	1002267	1000250
	TTT	1002351	1001754	809445	809444	1000250
	SST	1002563	1002555	1002547	1002548	1000250
	PVT	1023140	1023113	1023126	1023125	1000250
1605	PPE	1002060	1001647	792644	740350	1000247
	PPB	1002068	1001655	792646	740351	1000247
	PCE	1002368	1001716	792119	740349	1000247
	NPE	1002196	1001716	792119	740349	1000247
	PCB	1002361	1001724	792026	740348	1000247
	NPB	1002204	1001724	792026	740348	1000247
	PVT HV	1018072	1019066	1002267	1002267	1000247
	TTT	1002348	1001740	809407	809406	1000247
	SST	1002560	1002552	809424	809423	1000247
	PVT	1023137	1023110	1023126	1023125	1000247
1008	PPE	1002061	1001648	1001437	1001441	1000248
	PPB	1002069	1001656	1001436	1001440	1000248
	PCE	1002369	1001717	1001435	1001439	1000248
	NPE	1002197	1001717	1001435	1001439	1000248
	PCB	1002362	1001725	1001434	1001438	1000248
	NPB	1002205	1001725	1001434	1001438	1000248
	PVT HV	1018073	1019067	1002267	1002267	1000248
	TTT	1002349	1001741	809445	809444	1000248
	SST	1002561	1002553	809497	809496	1000248
	PVT	1023138	1023111	1023126	1023125	1000248
0713	PPE	1002062	1001649	1001437	1001441	1000249
	PPB	1002070	1001657	1001436	1001440	1000249
	PCE	1002370	1001718	1001435	1001439	1000249
	NPE	1002198	1001718	1001435	1001439	1000249
	PCB	1002363	1001726	1001434	1001438	1000249
	NPB	1002206	1001726	1001434	1001438	1000249
	PVT HV	1018084	1019069	1002267	1002267	1000249
	TTT	1002350	1001742	809445	809444	1000249
	SST	1002562	1002554	809497	809496	1000249
	PVT	1023139	1023112	1023126	1023125	1000249
0420	PPE	1002063	1001650	1001437	1001441	1000250
	PPB	1002071	1001658	1001436	1001440	1000250
	PCE	1002371	1001719	1001435	1001439	1000250
	NPE	1002199	1001719	1001435	1001439	1000250
	PCB	1002364	1001727	1001434	1001438	1000250
	NPB	1002207	1001727	1001434	1001438	1000250
	PVT HV	1018085	1019070	1002267	1002267	1000250
	TTT	1002351	1001754	809445	809444	1000250
	SST	1002563	1002555	1002547	1002548	1000250
	PVT	1023140	1023113	1023126	1023125	1000250
0232	PPE	1002064	1001651	1001437	1001441	1000251
	PPB	1002072	1001659	1001436	1001440	1000251
	PCE	1002609	1001720	1001435	1001439	1000251
	NPE	1002200	1001720	1001435	1001439	1000251
	PCB	1002608	1001728	1001434	1001438	1000251
	NPB	1002208	1001728	1001434	1001438	1000251
	TTT	1002352	1001755	809445	809444	1000251
	SST	1002564	1002556	1002547	1002548	1000251
	PVT	1023141	1023124	1023126	1023125	1000251

Solenoid Pump Spare Parts

beta/a and gamma/L Auto-degassing



For Auto-degassing pumps.

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

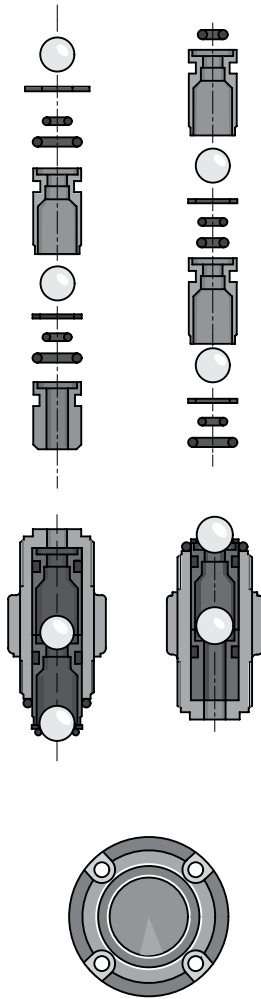
PP & NP Liquid Ends

- | | |
|-------------------|------------------------|
| 1 Diaphragm | 2 Valve Balls |
| 1 Suction Valve | 1 Set O-rings |
| 1 Discharge Valve | 1 Vent Valve, Complete |
| 2 Connector Sets | |

Liquid End Version	Material Code	Complete Liquid End	Spare Parts Kit	Spare Valves Only (connector sets not included)			Diaphragm
				Suction	Discharge	Vent	
GALa							
1601	PPE	1002393	1001756	792644	1001067	1001063	1000245
	PPB	1002392	1001762	792646	1001066	1001062	1000245
	NPE	1002248	1001660	792119	1001065	1001061	1000245
	NPB	1002242	1001666	792026	1001064	1001060	1000245
1602	PPE	1002395	1001757	792644	1001067	1001063	1000246
	PPB	1002394	1001763	792646	1001066	1001062	1000246
	NPE	1002249	1001661	792119	1001065	1001061	1000246
	NPB	1002243	1001667	792026	1001064	1001060	1000246
1005	PPE	1002399	1001758	792644	1001067	1001063	1000247
	PPB	1002398	1001764	792646	1001066	1001062	1000247
	NPE	1002250	1001662	792119	1001065	1001061	1000247
	NPB	1002244	1001668	792026	1001064	1001060	1000247
0708	PPE	1002397	1001759	1001437	1001071	1001063	1000248
	PPB	1002396	1001765	1001436	1001070	1001062	1000248
	NPE	1002251	1001663	1001435	1001069	1001061	1000248
	NPB	1002245	1001669	1001434	1001068	1001060	1000248
0413	PPE	1002401	1001760	1001437	1001071	1001063	1000249
	PPB	1002400	1001766	1001436	1001070	1001062	1000249
	NPE	1002252	1001664	1001435	1001069	1001061	1000249
	NPB	1002246	1001670	1001434	1001068	1001060	1000249
0220	PPE	1002403	1001761	1001437	1001071	1001063	1000250
	PPB	1002402	1001767	1001436	1001070	1001062	1000250
	NPE	1002253	1001665	1001435	1001069	1001061	1000250
	NPB	1002247	1001671	1001434	1001068	1001060	1000250
1605	PPE	1002399	1001758	792644	1001067	1001063	1000247
	PPB	1002398	1001764	792646	1001066	1001062	1000247
	NPE	1002250	1001662	792119	1001065	1001061	1000247
	NPB	1002244	1001668	792026	1001064	1001060	1000247
1008	PPE	1002397	1001759	1001437	1001071	1001063	1000248
	PPB	1002396	1001765	1001436	1001070	1001062	1000248
	NPE	1002251	1001663	1001435	1001069	1001061	1000248
	NPB	1002245	1001669	1001434	1001068	1001060	1000248
0713	PPE	1002401	1001760	1001437	1001071	1001063	1000249
	PPB	1002400	1001766	1001436	1001070	1001062	1000249
	NPE	1002252	1001664	1001435	1001069	1001061	1000249
	NPB	1002246	1001670	1001434	1001068	1001060	1000249
0420	PPE	1002403	1001761	1001437	1001071	1001063	1000250
	PPB	1002402	1001767	1001436	1001070	1001062	1000250
	NPE	1002253	1001665	1001435	1001069	1001061	1000250
	NPB	1002247	1001671	1001434	1001068	1001060	1000250

Solenoid Pump Spare Parts

beta/b



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

PP, PC, PV, & NP Liquid Ends

- 1 Diaphragm
- 1 Suction Valve
- 1 Discharge Valve
- 2 Connector Sets
- 2 Valve Balls
- 1 Set O-rings

TT Liquid Ends

- 1 Diaphragm
- 1 Suction Valve
- 1 Discharge Valve
- 2 Connector Sets
- 2 Valve Balls
- 1 Set O-rings
- 2 Ball Seat Discs

SS Liquid Ends

- 1 Diaphragm
- 4 Valve Balls
- 1 Set O-rings
- 4 Ball Seat Discs

Liquid End Version	Material Code	Complete Liquid End	Spare Parts Kit	Spare Valves Only (connector sets not included)		
				Suction	Discharge	Diaphragm
1000	PPT	1035317	1023107	1023128	1023127	1000244
	NPT	1034560	1023107	1023128	1023127	1000244
	PVT	1023134	1023107	1023128	1023127	1000244
	TTT	1002345	1001737	809407	809406	1000244
	SST	1002557	1002549	809424	809423	1000244
1601	PPT	1035318	1023108	1023128	1023127	1000245
	NPT	1034561	1023108	1023128	1023127	1000245
	PVT	1023135	1023108	1023128	1023127	1000245
	TTT	1002346	1001738	809407	809406	1000245
	SST	1002558	1002550	809424	809423	1000245
2001	NPT	1034561	1023108	1023128	1023127	1000245
	SST	1002558	1002550	809424	809423	1000245
1602	PPT	1035319	1023109	1023128	1023127	1000246
	NPT	1034562	1023109	1023128	1023127	1000246
	PVT	1023136	1023109	1023128	1023127	1000246
	TTT	1002347	1001739	809407	809406	1000246
	SST	1002559	1002551	809424	809423	1000246
2002	NPT	1034562	1023109	1023128	1023127	1000246
	SST	1002559	1002551	809424	809423	1000246
1604	PPT	1035320	1035332	1023128	1023127	1034612
	NPT	1034563	1035332	1023128	1023127	1034612
	PVT	1035298	1035332	1023128	1023127	1034612
	SST	1035325	1035331	809424	809423	1034612
	PVT HV	1035326	1035342	-	-	1034612
0708	PPT	1035321	1023111	1023126	1023125	1000248
	NPT	1034564	1023111	1023126	1023125	1000248
	PVT	1023138	1023111	1023126	1023125	1000248
	TTT	1002349	1001741	809445	809444	1000248
	SST	1002561	1002553	809497	809496	1000248
	PVT HV	1018073	1019067	1002267	1002267	1000248
0413	PPT	1035322	1023112	1023126	1023125	1000249
	NPT	1034565	1023112	1023126	1023125	1000249
	PVT	1023139	1023112	1023126	1023125	1000249
	TTT	1002350	1001742	809445	809444	1000249
	SST	1002562	1002554	809497	809496	1000249
	PVT HV	1018084	1019069	1002267	1002267	1000249
0220	PPT	1035323	1023113	1023126	1023125	1000250
	NPT	1034566	1023113	1023126	1023125	1000250
	PVT	1023140	1023113	1023126	1023125	1000250
	TTT	1002351	1001754	809445	809444	1000250
	SST	1002563	1002555	1002547	1002548	1000250
	PVT HV	1018085	1019070	1002267	1002267	1000250
2504	NPT	1034563	1035332	1023128	1023127	1034612
	SST	1035325	1035331	809424	809423	1034612
1008	PPT	1035321	1023111	1023126	1023125	1000248
	NPT	1034564	1023111	1023126	1023125	1000248
	PVT	1023138	1023111	1023126	1023125	1000248
	TTT	1002349	1001741	809445	809444	1000248
	SST	1002561	1002553	809497	809496	1000248
	PVT HV	1018073	1019067	1002267	1002267	1000248

Solenoid Pump Spare Parts

beta/b continued

Liquid End Version	Material Code	Complete Liquid End	Spare Parts Kit	Spare Valves Only (connector sets not included)		
				Suction	Discharge	Diaphragm
0713	PPT	1035322	1023112	1023126	1023125	1000249
	NPT	1034564	1023112	1023126	1023125	1000249
	PVT	1023139	1023112	1023126	1023125	1000249
	TTT	1002350	1001742	809445	809444	1000249
	SST	1002562	1002554	809497	809496	1000249
	PVT HV	1018084	1019069	1002267	1002267	1000249
0420	PPT	1035323	1023113	1023126	1023125	1000250
	NPT	1034566	1023113	1023126	1023125	1000250
	PVT	1023140	1023113	1023126	1023125	1000250
	TTT	1002351	1001754	809445	809444	1000250
	SST	1002563	1002555	1002547	1002548	1000250
	PVT HV	1018085	1019070	1002267	1002267	1000250

beta/b Auto-degass

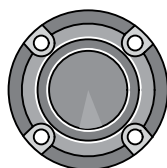
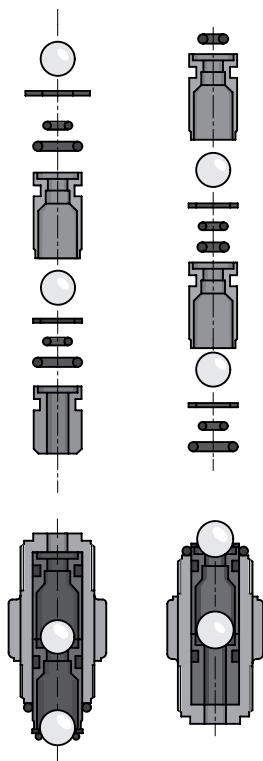
For Auto-degassing pumps.

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

PP & NP Liquid Ends

1 Diaphragm 1 Suction Valve 1 Discharge Valve 2 Valve Balls
2 Connector Sets 1 Set O-rings 1 Vent Valve, Complete

Liquid End Version	Material Code	Complete Liquid End	Spare Parts Kit	Spare Valves Only (connector sets not included)			Diaphragm
				Suction	Discharge	Vent	
1601	NPE	1002248	1001660	792119	1001065	1001061	1000245
	NPB	1002242	1001666	792026	1001064	1001060	1000245
	PPE	1002393	1001756	792644	1001067	1001063	1000245
	PPB	1002392	1001762	792646	1001066	1001062	1000245
1602	NPE	1002249	1001661	792119	1001065	1001061	1000246
	NPB	1002243	1001667	792026	1001064	1001060	1000246
	PPE	1002395	1001757	792644	1001067	1001063	1000246
	PPB	1002394	1001763	792646	1001066	1001062	1000246
1604	NPE	1035299	1035333	792119	1001065	1001061	1034612
	NPB	1035300	1035334	792026	1001064	1001060	1034612
	PPE	1035301	1035335	792644	1001067	1001063	1034612
	PPB	1035302	1035336	792646	1001066	1001062	1034612
0708	NPE	1002251	1001663	1001435	1001069	1001061	1000248
	NPB	1002245	1001669	1001434	1001068	1001060	1000248
	PPE	1002397	1001759	1001437	1001071	1001063	1000248
	PPB	1002396	1001765	1001436	1001070	1001062	1000248
0413	NPE	1002252	1001664	1001435	1001069	1001061	1000249
	NPB	1002246	1001670	1001434	1001068	1001060	1000249
	PPE	1002401	1001760	1001437	1001071	1001063	1000249
	PPB	1002400	1001766	1001436	1001070	1001062	1000249
0220	NPE	1002253	1001665	1001435	1001069	1001061	1000250
	NPB	1002247	1001671	1001434	1001068	1001060	1000250
	PPE	1002403	1001761	1001437	1001071	1001063	1000250
	PPB	1002402	1001767	1001436	1001070	1001062	1000250
1008	NPE	1002251	1001663	1001435	1001069	1001061	1000248
	NPB	1002245	1001669	1001434	1001068	1001060	1000248
	PPE	1002397	1001759	1001437	1001071	1001063	1000248
	PPB	1002396	1001765	1001436	1001070	1001062	1000248
0713	NPE	1002252	1001664	1001435	1001069	1001061	1000249
	NPB	1002246	1001670	1001434	1001068	1001060	1000249
	PPE	1002401	1001760	1001437	1001071	1001063	1000249
	PPB	1002400	1001766	1001436	1001070	1001062	1000249
0420	NPE	1002253	1001665	1001435	1001069	1001061	1000250
	NPB	1002247	1001671	1001434	1001068	1001060	1000250
	PPE	1002403	1001761	1001437	1001071	1001063	1000250
	PPB	1002402	1001767	1001436	1001070	1001062	1000250



pk_1_008

Solenoid Pump Spare Parts

gamma/ X

gamma/ X Spare Parts Kits

Spare parts kits for gamma/ X consists of:

- 1 Diaphragm
- 1 Suction Valve, complete
- 1 Discharge Valve, complete
- 1 Connector set
- 2 Valve Balls

Liquid end version	Material Code	Complete liquid end	Spare parts kit	Spare Valves Only (connector sets not included)		Diaphragm
				Suction valve	Discharge valve	
1602	NPB	1076836	1001723	792026	740348	1000246
	NPE	1076864	1001715	792119	740349	1000246
	NPT	1076878	1023109	1023128	1023127	1000246
	PPB	1076888	1001654	792646	740351	1000246
	PPE	1076910	1001646	792644	740350	1000246
	PPT	1076918	1023109	1023128	1023127	1000246
	PVT	1077298	1023109	1023128	1023127	1000246
	SST	1076128	1002551	809424	809423	1000246
	TTT	1076967	1001739	809407	809406	1000246
1604	NPB	1076837	1039986	792026	740348	1034612
	NPE	1076865	1039988	792119	740349	1034612
	NPT	1076879	1035332	1023128	1023127	1034612
	PPB	1076889	1039987	792646	740351	1034612
	PPE	1076911	1039989	792644	740350	1034612
	PPT	1076919	1035332	1023128	1023127	1034612
	PVT	1076803	1035332	1023128	1023127	1034612
	PVT4	1076241	1035342	1002267	1002267	1034612
	SST	1076239	1035341	809424	809423	1034612
	TTT	1076968	1035330	809407	809406	1034612
2002	NPB	1076981	1001723	792026	740348	1000246
	NPE	1076982	1001715	792119	740349	1000246
	NPT	1076983	1023109	1023128	1023127	1000246
	SST	1076980	1002551	809424	809423	1000246
2504	NPB	1076273	1039986	792026	740348	1034612
	NPE	1076324	1039988	792119	740349	1034612
	NPT	1076986	1023110	1023128	1023127	1034612
	SST	1076240	1035331	809424	809423	1034612
0708	NPB	1076838	1001725	1001434	1001438	1000248
	NPE	1076866	1001717	1001435	1001439	1000248
	NPT	1076880	1023111	1023126	1023125	1000248
	PPB	1076890	1001656	1001436	1001440	1000248
	PPE	1076912	1001648	1001437	1001441	1000248
	PPT	1076920	1023111	1023126	1023125	1000248
	PVT	1076804	1023111	1023126	1023125	1000248
	PVT4	1076242	1019067	1002267	1002267	1000248
	SST	1076237	1002553	809497	809496	1000248
	TTT	1076969	1001741	809445	809444	1000248
1009	NPB	1076839	1001725	1001434	1001438	1000248
	NPE	1076867	1001717	1001435	1001439	1000248
	NPT	1076881	1023111	1023126	1023125	1000248
	PPB	1076891	1001656	1001436	1001440	1000248
	PPE	1076913	1001648	1001437	1001441	1000248
	PPT	1076921	1023111	1023126	1023125	1000248
	PVT	1076805	1023111	1023126	1023125	1000248
	PVT4	1076923	1019067	1002267	1002267	1000248
	SST	1076802	1002553	809497	809496	1000248
	TTT	1076970	1001741	809445	809444	1000248

Solenoid Pump Spare Parts

gamma/ X continued

Spare parts kits for gamma/ X consists of:

- 1 Diaphragm
- 1 Suction Valve, complete
- 1 Discharge Valve, complete
- 1 Connector set
- 2 Valve Balls

Spare Valves Only (connector sets not included)

Liquid end version	Material Code	Complete liquid end	Spare parts kit	Suction valve	Discharge valve	Diaphragm
0414	NPB	1076840	1001726	1001434	1001438	1000249
	NPE	1076868	1001718	1001435	1001439	1000249
	NPT	1076883	1023112	1023126	1023125	1000249
	PPB	1076892	1001657	1001436	1001440	1000249
	PPE	1076914	1001649	1001437	1001441	1000249
	PPT	1076922	1023112	1023126	1023125	1000249
	PVT	1076831	1023112	1023126	1023125	1000249
	PVT4	1076243	1019069	1002267	1002267	1000249
	SST	1076236	1002554	809497	809496	1000249
0715	TTT	1076972	1001742	809445	809444	1000249
	NPB	1076841	1001726	1001434	1001438	1000249
	NPE	1076869	1001718	1001435	1001439	1000249
	NPT	1076884	1023112	1023126	1023125	1000249
	PPB	1076907	1001657	1001436	1001440	1000249
	PPE	1076915	1001649	1001437	1001441	1000249
	PPT	1076929	1023112	1023126	1023125	1000249
	PVT	1076833	1023112	1023126	1023125	1000249
	PVT4	1076933	1019069	1002267	1002267	1000249
0220	SST	1076937	1002554	809497	809496	1000249
	TTT	1076971	1001742	809445	809444	1000249
	NPB	1076842	1051107	1001434	1001438	1045456
	NPE	1076871	1051118	1001435	1001439	1045456
	NPT	1076885	1051129	1023126	1023125	1045456
	PPB	1076908	1001658	1001436	1001440	1045456
	PPE	1076916	1051096	1001437	1001441	1045456
	PPT	1076930	1051129	1023126	1023125	1045456
	PVT	1076834	1051129	1023126	1023125	1045456
0424	PVT4	1076934	1051134	1002267	1002267	1045456
	SST	1076235	1051145	809497	809496	1045456
	TTT	1076973	1051151	809445	809444	1045456
	NPB	1076843	1051107	1001434	1001438	1045456
	NPE	1076873	1051118	1001435	1001439	1045456
	NPT	1076886	1051129	1023126	1023125	1045456
	PPB	1076909	1001658	1001436	1001440	1045456
	PPE	1076917	1051096	1001437	1001441	1045456
	PPT	1076931	1051129	1023126	1023125	1045456
0245	PVT	1076835	1051129	1023126	1023125	1045456
	PVT4	1076935	1051134	1002267	1002267	1045456
	SST	1076936	1051145	809497	809496	1045456
	TTT	1076974	1051151	809445	809444	1045456
	NPB	1076844	1051108	1001434	1001438	1045443
	NPE	1076874	1051119	1001435	1001439	1045443
	NPT	1076887	1051130	1023126	1023125	1045443
	PPB	1076976	1051086	1001436	1001440	1045443
	PPE	1076977	1051097	1001437	1001441	1045443
	PPT	1076978	1051130	1023126	1023125	1045443
	PVT	1076979	1051130	1023126	1023125	1045443
	SST	1076271	1051146	809497	809496	1045443
	TTT	1076975	1051152	809445	809444	1045443

Solenoid Pump Spare Parts

gamma/ X Auto-degass

gamma/ X Spare Auto-degass Parts Kits

Spare parts kits for gamma/ X consists of:

- 1 Diaphragm
- 1 Suction Valve, complete
- 1 Discharge Valve, complete
- 1 Connector set
- 2 Valve Balls

(Auto Degassing liquid ends with bypass)

Spare Valves Only
(connector sets not included)

Liquid end version	Material Code	Complete liquid end	Spare parts kit	Suction valve	Discharge valve	Diaphragm
1602	NPB9	1076988	1001667	792026	1001064	1000246
	NPE9	1076989	1001661	792119	1001065	1000246
1604	NPB9	1076991	1035334	792026	1001064	1034612
	NPE9	1076992	1035333	792119	1001065	1034612
0708	NPB9	1076993	1001669	1001434	1001068	1000248
	NPE9	1076994	1001663	1001435	1001069	1000248
1009	NPB9	1076995	1001669	1001434	1001068	1000248
	NPE9	1076996	1001663	1001435	1001069	1000248
0414	NPB9	1076997	1001725	1001434	1001068	1000249
	NPE9	1076998	1001717	1001435	1001069	1000249
0715	NPB9	1076999	1001670	1001434	1001068	1000249
	NPE9	1077000	1001664	1001435	1001069	1000249
0220	NPB9	1077001	1051113	1001434	1001068	1045456
	NPE9	1077002	1051124	1001435	1001069	1045456
0424	NPB9	1077003	1051113	1001434	1001068	1045456
	NPE9	1077004	1051124	1001435	1001069	1045456

(Auto Degassing liquid ends without bypass)

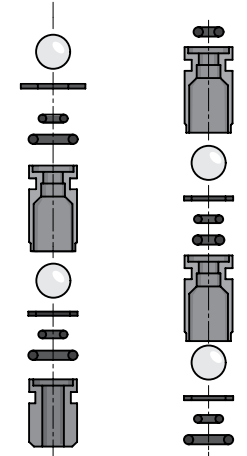
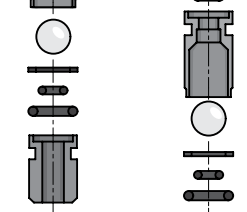
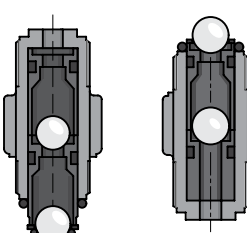
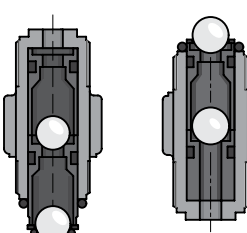
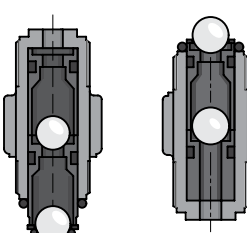
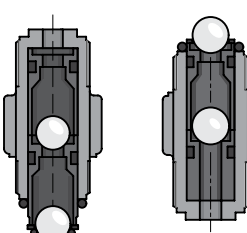
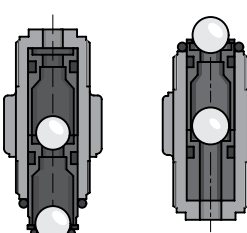
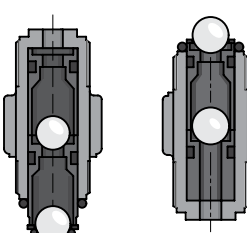
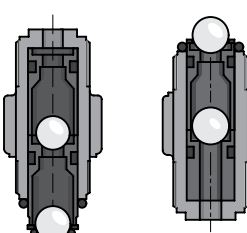
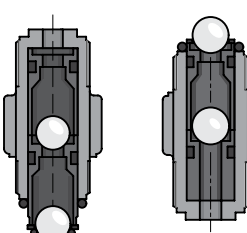
Spare Valves Only
(connector sets not included)

Liquid end version	Material Code	Complete liquid end	Spare parts kit	Suction valve	Discharge valve	Diaphragm
1602	PVT7	1076990	1047830	1113242	1047828	1000246
1604	PVT7	1077005	1047858	1113242	1047828	1034612
0708	PVT7	1077006	1047832	1113241	1047829	1000248
1009	PVT7	1077007	1047832	1113241	1047829	1000248
0414	PVT7	1077008	1047833	1113241	1047829	1000249
0715	PVT7	1077009	1047833	1113241	1047828	1000249
0220	PVT7	1077010	1051111	1113241	1047829	1045456
0424	PVT7	1077011	1051111	1113241	1047829	1045456

Solenoid Pump Spare Parts

EXtronic

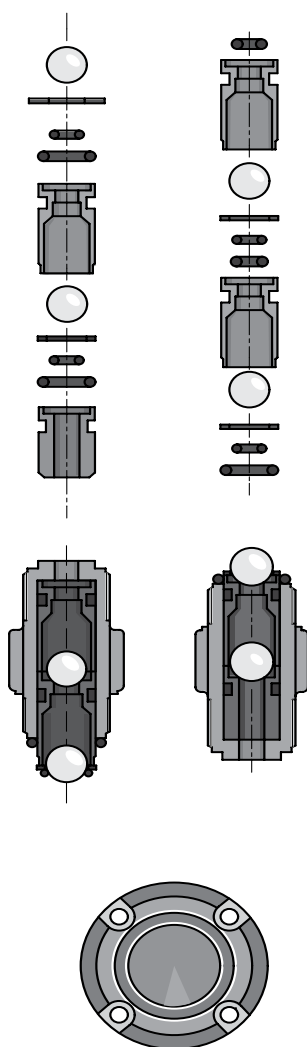
EXtronic Spare Parts Kits

	Liquid end version	Material Code	Spare Parts Kit	Diaphragm
	1000	PP1	740357	811452
		NP3	740354	811452
		TT	912674	811452
		SS2	912675	811452
	1601	PP1	740361	811453
		NP3	740358	811453
		NS3/PS3	792033	811453
		TT	912678	811453
		SS2	912679	811453
	1201	PP1	740380	811454
		NP3	740362	811454
		NS3/PS3	792034	811454
		TT	912682	811454
		SS2	912683	811454
	0803	PP1	740384	1002510
		NP3	740381	1002510
		NS3/PS3	792035	1002510
		SS2	912687	1002510
	1002/2502	PP1	740388	811456
		NP3	740385	811456
		NS3/PS3	792036	811456
		TT	912690	811456
		HV/PP4 (Type 1002)	910174	811456
	0308/1006/2505	PP1	740497	1002511
		NP1	740498	1002511
		SS2	912695	1002511
		HV/PP4 (Type 1006)	910940	1002511
	0613/1310	NP1	740505	811458
		TT1	912698	811458
		SS2	912699	811458
		HV/PP4 (Type 1310)	910942	811458
	0417/0814	NP1	740502	811459
		TT	910978	811459
	0430/0230-DN 10	NP1	740508	811460
		TT	910994	811460
		SS1	910996	811460
	0260	-	-	811461

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Solenoid Pump Spare Parts

delta & gamma/ XL



Spare parts kits for delta®, consisting of:

- 1 diaphragm
- 1 suction valve set
- 1 discharge valve set
- 2 ball valves
- 1 set of O-rings
- 1 connector set

Liquid End Version	Material Code	Complete Liquid End	Spare Parts Kit	Diaphragm
1612	NPE	1030540	1030536	1000248
	NPB	1030542	1030525	1000248
	PVT	1025140	1027081	1000248
	PVT7	1110749	1111663	1000248
	SST	1027074	1027086	1000248
1020	NPE	1030541	1030537	1000249
	NPB	1030543	1030526	1000249
	PVT	1025141	1027082	1000249
	PVT7	1110642	1111665	1000249
	SST	1027075	1027087	1000249
0730	NPE	1030618	1030621	1000250
	NPB	1030609	1030612	1000250
	PVT	1025142	1027083	1000250
	PVT7	1110613	1110410	1000250
	SST	1027076	1027088	1000250
0450	PVT	1025143	1027084	1000251
	SST	1027077	1027089	1000251
0280	PVT	1025184	1027085	1025075
	SST	1027078	1027090	1025075
1608	NPE	1030619	1030620	1030353
	NPB	1030610	1030611	1030353
	PVT	1030227	1030225	1030353
	PVT7	1110654	1111657	1030353
	SST	1030228	1030226	1030353
2508	NPE	1030619	1030620	1030353
	NPB	1030610	1030611	1030353
	SST	1030228	1030226	1030353

Note: Stainless steel version without suction and discharge valve sets.

Motor Pump Spare Parts

Sigma X 1,2 & 3

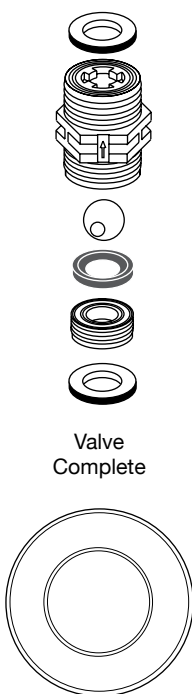
Complete liquid ends include pump head, valves, mounting screws, diaphragm and backplate. Clamping nuts and inserts are not included with complete liquid ends, complete valves or spare parts kits. Spare parts kits include:

PVT Liquid ends

- 1 Diaphragm
- 1 Suction valve
- 1 Discharge valve
- 2 Valve balls
- 1 Set of o-rings

SST Liquid ends

- 1 Diaphragm
- 2 Valve balls
- 1 Set of o-rings, complete
(sleeve rings, ball seat rings)



Valve
Complete

Material Code	Liquid End Complete	Spare Parts Kit	Valve Complete	Diaphragm
<u>12017, 12035, 10050 with Liquid end FM 50</u>				
PVT	1030104	1035964	1002267	1030114
SST	1030106	1035966*	809459	1030114
<u>10022, 10044, 07065 with Liquid end FM 65</u>				
PVT	1030105	1035967	1002267	1030115
SST	1030107	1035969*	809459	1030115
<u>07042, 04084, 04120, with Liquid end FM 120</u>				
PVT	1036214	1035961	792517	1035828
SST	1036215	1035963	809404	1035828
<u>16050 with Liquid end FM 130</u>				
PVT	1029763	1035951	792517	1029771
SST	1029764	1035957*	809404	1029771
<u>16090, 16130 with Liquid end FM 130</u>				
PVT	7781515	1035951	792517	1029771
SST	1029764	1035957*	809404	1029771
<u>07120, 07220 with Liquid end FM 350</u>				
PVT	1029761	1035953	740615	1033422
SST	1029762	1035960*	803708	1033422
<u>04350 with Liquid end FM 350</u>				
PVT	7781516	1035953	740615	1033422
SST	7781517	1035960*	803708	1033422
<u>120145, 120190, 120270, with Liquid end FM 330 - DN 25</u>				
PVT	1029585	1034678	740615	1029604
SST	1029586	1034679*	803708	1029604
<u>070410, 070580, 040830, with Liquid end FM 1000 - DN 32</u>				
PVT	1029578	1034681	1020031	1029603
SST	1029587	1034682*	1002811	1029603

*SS complete without spare valves

Motor Pump Spare Parts

ProMus

Description	Part No.
Rebuild Kit for Sz 17 Hydraulics 3/8 Plunger	853755
Rebuild Kit for Sz 17 Hydraulics 7/16 Plunger	853756
Rebuild Kit for Sz 30 Hydraulics 5/8 Plunger	854756
Rebuild Kit for Sz 30 Hydraulics 13/16 Plunger	854757
Rebuild Kit for Sz 30 Hydraulics 1 1/8 Plunger	854758
Rebuild Kit for Sz 40 Hydraulics 1 3/4 Plunger	855754
Rebuild Kit for Sz 40 Hydraulics 2 Plunger	855755
Rebuild Kit for Sz 40 Hydraulics 2 1/4 Plunger	855756
Liquid End Spare Parts Kits Size 17	
Spare Parts Kit for Size 17 with 316 SS single ball	853502
Spare Parts Kit for Size 17 with 316 SS double ball for suct. & disch.	853503
Spare Parts Kit for Size 17 with 316 SS double ball for disch.	853505
Spare Parts Kit for Size 17 with Alloy 20 single ball	853582
Spare Parts Kit for Size 17 with Alloy 20 double ball for suct. & disch.	853583
Spare Parts Kit for Size 17 with Alloy 20 double ball for disch.	853585
Spare Parts Kit for Size 17 with PVT double ball	853908
Liquid End Spare Parts Kits Size 30	
Spare Parts Kit for Size 30 with 316 SS single ball	854501
Spare Parts Kit for Size 30 with 316 SS double ball for suct. & disch.	854503
Spare Parts Kit for Size 30 with 316 SS double ball for disch., 30/17	854505
Spare Parts Kit for Size 30 with 316 SS double ball for disch., 30/30	854507
Spare Parts Kit for Size 30 with 316 SS double ball for suct. & disch., 30/17	854509
Spare Parts Kit for Size 30 with Alloy 20 single ball	854601
Spare Parts Kit for Size 30 with Alloy 20 double ball for suct. & disch., 30/30	854603
Spare Parts Kit for Size 30 with Alloy 20 double ball for disch., 30/17	854605
Spare Parts Kit for Size 30 with Alloy 20 double ball for disch., 30/30	854607
Spare Parts Kit for Size 30 with Alloy 20 double ball for suct. & disch., 30/17	854609
Spare Parts Kit for Size 30 with PVT single ball	854908
Liquid End Spare Parts Kits Size 40	
Spare Parts Kit for Size 40 with 316 SS single ball	855501
Spare Parts Kit for Size 40 with Alloy 20 single ball	855504
Spare Parts Kit for Size 40 with PVT single ball	855908

Motor Pump Spare Parts

Makro TZMa

Spare parts kits for ProMinent Makro series metering pumps include pump diaphragm, valve balls, valve components and all required o-rings.

Standard kit for PP, NP-Acrylic and PVC material versions:

- 1 Pump diaphragm
- 1 Suction valve, complete
- 1 Discharge valve, complete
- 2 Valve balls
- 1 Set of o-rings, complete

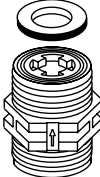
Standard kit for TT-PTFE material version:

- 1 Pump diaphragm
- 1 Suction valve, complete
- 1 Discharge valve, complete
- 2 Valve balls
- 2 Ball-seat discs or valve assembly
- 1 Set of o-rings, complete

Standard kit for SS (stainless steel) version:

- 1 Pump diaphragm
 - 2 Valve balls
 - 1 Set of o-rings, complete
- *SS with 2 valves, complete**

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

	Liquid end Type	Material Code	Complete Liquid end	Spare Parts Kit	Valve Complete	Diaphragm
	FM-130 DN 20	PPE	910401	910451	803701	811470
		PCB	910402	910454	803703	811470
		TTT	910403	910457	803705	811470
		SST	910404	910474 910460*	803707	811470
	FM-260 DN 20	PPE	910407	910452	803701	811471
		PCB	910408	910455	803703	811471
		TTT	910409	910458	803705	811471
		SST	910410	910475 910461*	803708	811471
	FM-530 DN 25	PPE	910413	910453	740615	811472
		PCB	910414	910456	740615	811472
		TTT	910415	910459	740615	811472
		SST	910416	910476 910462*	803708	811472
	HM/AM Valve complete	PPE	1001245	1001573	1023799	811473
		PCB	1001244	1001574	1023799	811473
		TTT	1001246	1001575	1023799	811473
		SST	1001247	1001577 1001576*	1004178	811473
	FMH-70-20	PPE	-	911903	1023799	1007298
		PCB	-	911901	1023799	1007298
		TTT	-	911905	1023799	1007298
		SST	-	911907 911908*	1004178	1007298
	FMH-90-20	PPE	-	911904	1023799	1007298
		PCB	-	911902	1023799	1007298
		TTT	-	911906	1023799	1007298
		SST	-	911909 911910*	1004178	1007298

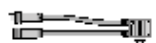
Makro TZMb

	Material Code	Spare Parts Kit	Suction/Discharge Valves	Diaphragm
	120260, 120340, 120430, 120510, 120650 (FM670 - DN25)			
	PCT/PPT/TTT	1025164	740615	1022887
	SST	1022896	803708	1022887
	SST*	1022895	-	1022887
	070430, 070570, 070720, 070860, 071070			
	PCT/PPT/TTT	1025167	1020031	1022900
	SST	1022917	1002811	1022900
	SST*	1022916	-	1022900
	040840, 041100, 041400, 041670, 042100			
	PCT/PPT/TTT	1025169	1023799	1022921
	SST	1022930	1004178	1022921
	SST*	1022929	-	1022921

* Without Checkvalves

Pump & Systems Accessories

PROFIBUS® Adapters

	Description		Figure	Part No.
 fig. 1	Y-adapter 2 x M12 x 1 male/female	9 pin, Sub-D plug	1	1005838
 fig. 2	9 pin, Sub-D plug			
 fig. 3	Adapter 1 x M12 x 1 male	9 pin, Sub-D plug	2	1005839
 fig. 4	Y-adapter 2 x M12 x 1 male/female	M12 x 1	3	1040956
 fig. 5	Adapter 1 x M12 x 1 male	M12 x 1	4	1040955
 fig. 5	PROFIBUS® Y-adapter	M12 x 1	5	1036621
 fig. 5	PROFIBUS® (termination resistance, plug-in)	M12 x 1	5	1036622

Control cables

Required for external control of ProMinent metering pumps including:

- beta b
- gamma/ X
- gamma/ XL
- DULCO flex Control (DFXa) and (DFYa)
- Sigma X: Sigma/ 1 control
- Sigma X: Sigma/ 2 control
- Sigma X: Sigma/ 3 control



Description	Part No.
Universal control cable, 5 pin round plug; 5-wire, 6 ft. (2 m)	1001300
Universal control cable, 5 pin round plug; 5-wire, 16 ft. (5 m)	1001301
Universal control cable, 5 pin round plug; 5-wire, 32 ft. (10 m)	1001302
Universal control cable, 5 pin round plug; 5-wire, 164 ft. (50 m)	1032811

(DETAILED WIRING DIAGRAMS ON NEXT PAGE)

Control cables for configurable inputs and outputs

Control cable and round plug for configurable inputs and outputs for controlling the process timer or for additional alarm messages.

Suitable for use with the **gamma/ XL** and **DULCO flex Control (DFXa)** metering pumps.

Description	Part No.
Control cable for configurable i/o, 6 ft. (2 m)	1094091
Control cable for configurable i/o, 16 ft. (5 m)	1094093
Control cable for configurable i/o, 32 ft. (10 m)	1094092

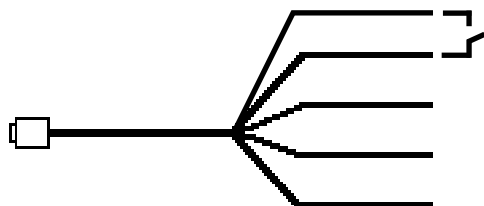
Pump & Systems Accessories

Control Cable Diagrams

Remote On/Off

BROWN and BLACK wires must be connected together via an ON/OFF contact or shorted together. When the contact is closed between the BLACK & BROWN wires, the pump will run. When the contact is open, the pump will stop.

***Note:** If ON/OFF control is the only control feature being used, WHITE, BLUE & GREY wires are not used and should be cut back.

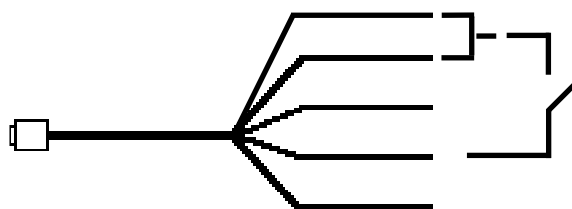


BROWN: Remote On/Off*
 BLACK: Common*
 GREY: Auxiliary Frequency
 WHITE: Pulse
 BLUE: Analog

Pulse Control

Pulse control will allow the pump to run in proportion to a pulsing potential free contact closure.

***Note:** BROWN and BLACK wires have to be connected together via an ON/OFF contact or shorted together. If the GREY wire is not used it should be cut back. The BLUE wire is not used and should be cut back.

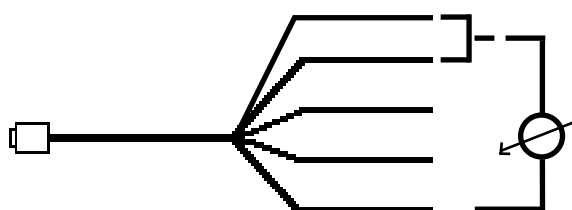


BROWN: Remote On/Off*
 BLACK: Common (PC)*
 GREY: Auxiliary Frequency
 WHITE: Pulse (PC)
 BLUE: Analog

Analog Control (not available with beta metering pumps)

Analog control runs in proportion to an analog signal such as 4 - 20 mA.

***Note:** BROWN and BLACK wires must be connected together via an ON/OFF contact or shorted together. The BLACK wire is negative and the BLUE wire is positive. If GREY wire is not used it should be cut back. The WHITE wire is not used and should be cut back.

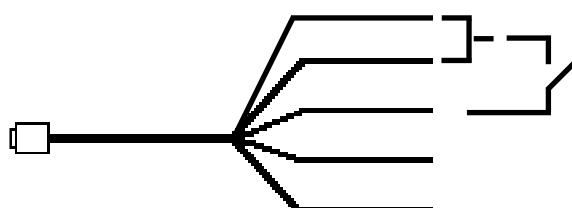


BROWN: Remote On/Off*
 BLACK: Common (-)*
 GREY: Auxiliary Frequency
 WHITE: Pulse
 BLUE: Analog (+)

Auxiliary Frequency

Auxiliary frequency will allow the pump to default to a predetermined stroking frequency regardless of which operating mode the pump is in. The pump defaults to this stroking frequency as long as a contact is closed between the black and grey wires of the universal control cable.

***Note:** BROWN and BLACK wires must be connected together via an ON/OFF contact or shorted together.

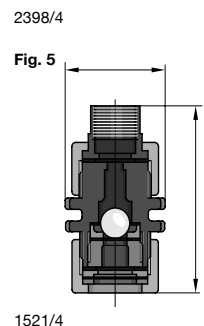
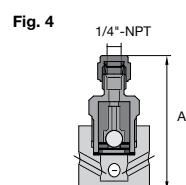
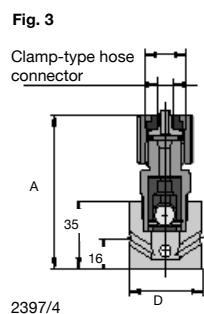
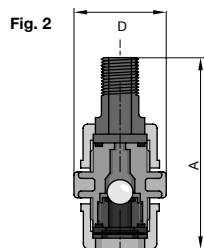
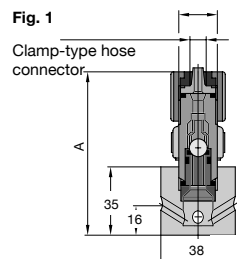


BROWN: Remote On/Off*
 BLACK: Common (AUX)*
 GREY: Auxiliary Frequency (AUX)
 WHITE: Pulse
 BLUE: Analog

Pump & Systems Accessories

Foot Valves

To be installed at the inlet of the suction line to improve priming and protect pump against coarse impurities. With ceramic* weight, strainer and ball check valve (must be mounted vertically for ball check function).



Polypropylene

Valve body of PP, o-rings of EPDM (PP1, PPE)

	Dimensions inches (mm)		Part No.
	Dim "A"	Dim "D"	
Connection 1/4" x 3/16" tubing (Fig 1)	3-1/4 (83)	1-3/8 (35)	924558
Connection 1/2" x 3/8" tubing (Fig 1)	3-1/4 (83)	1-3/8 (35)	924566
Connection 1/2" MNPT for 0423/0230 (Fig 2)	3-7/8 (98)	1-3/8 (35)	809465
Connection 3/8" PPE Foot Valve			7924552

Valve body of PP, o-rings of Viton® (PP2, PPB)

Connection 1/4" x 3/16" tubing (Fig 1)	3-1/4 (83)	1-3/8 (35)	7924558
Connection 1/2" x 3/8" tubing (Fig 1)	3-1/4 (83)	1-3/8 (35)	7809470
Connection 1/2" MNPT for 0423/0230 (Fig 2)	3-7/8 (98)	1-3/8 (35)	7809465
Connection 3/8" PPB Foot Valve			7924553

Valve body of PP, o-rings of EPDM-high viscosity (PP4)

Connection 1/2" MNPT (Fig 2)	4 (102)	1-5/8 (42)	7924516
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Valve body of PP, o-rings of Viton®-high viscosity (PP5)

Connection 1/2" MNPT (Fig 2)	4 (102)	1-5/8 (42)	7809471
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PVC

Valve body of PVC, o-rings of EPDM

Connection 1/4" x 3/16" tubing (Fig 1)	3-1/8 (79)	1-3/8 (35)	7924547
Connection 1/2" x 3/8" tubing (Fig 1)	3-1/4 (83)	1-3/8 (35)	7924549
Connection 1/2" MNPT (Fig 2)	3-7/8 (98)	1-3/8 (35)	7809464
Connection 3/8" NPE Foot Valve			7924550

Valve body of PVC, o-rings of Viton®

Connection 1/4" x 3/16" tubing (Fig 1)	3-1/8 (79)	1-3/8 (35)	924557
Connection 1/2" x 3/8" tubing (Fig 1)	3-1/4 (83)	1-3/8 (35)	924565
Connection 1/2" MNPT (Fig 2)	3-7/8 (98)	1-3/8 (35)	809464
Connection 3/8" NPB Foot Valve			7924551

PVT

Valve body of PVDF, seals of PTFE

Connection 1/4" x 3/16" tubing (Fig 1)	3-1/8 (79)	1-3/8 (35)	1024705
Connection 1/2" x 3/8" tubing (Fig 1)	3-1/4 (83)	1-3/8 (35)	1024827

PTFE

Valve body and seals of PTFE (TT1)

Connection 1/4" x 3/16" tubing (Fig 3)	3-1/4 (83)	1-1/2 (38)	809455
Connection 1/2" x 3/8" tubing (Fig 3)	3-1/2 (89)	1-1/2 (38)	809473
Connection 1/2" MNPT (not illustrated)	3-7/8 (98)	1-1/2 (38)	809466

SS

Valve body of stainless steel, seals of PTFE

Connection 1/4" FNPT (SS2) (Fig 4)	2-5/8 (67)	1-1/2 (38)	924567
Connection 3/8" FNPT (SS1) (Fig 5)	2-5/8 (67)	1-1/2 (38)	809467

***Note:** For fluoride, (hydrofluosilicic acid) or when plastic is required to replace standard ceramic weight.

PVC foot valve weight

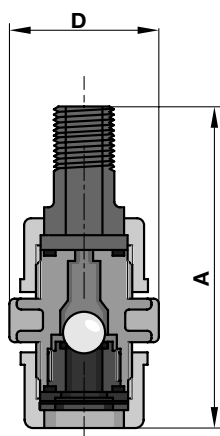
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Pump & Systems Accessories

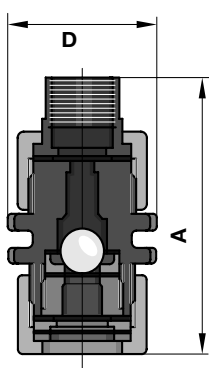
Foot Valves

Fig. 1



2165/4

Fig. 2



1521/4

Polypropylene (Fig. 1) - Valve body of PP, o-rings of EPDM (PP1)

Connection	Dimensions inches (mm)		Part No.
	Dim "A"	Dim "D"	
1/2" MNPT (DN 10) (delta, Sigma 1 and Sigma 2)	3-7/8 (98)	1-1/2 (38)	7809465
3/4" MNPT (DN 15) (Sigma 1 and Sigma 2)	4 (102)	1-3/4 (44)	924516
3/4" MNPT (DN 20) (Sigma 2)	5 (127)	2-1/4 (57)	803721
1" MNPT (DN 25) (Sigma 2, Sigma 3 and Makro)	5-1/4 (133)	2-1/2 (63)	803722
1-1/2" MNPT (DN 40) (Sigma 3 and Makro)	6-1/2 (165)	3-1/2 (89)	1029475

PVC (Fig. 1) - Valve body of PVC, o-rings of Viton® (NP1)

1/2" MNPT (DN 10) (delta, Sigma 1 and Sigma 2)	3-7/8 (98)	1-1/2 (38)	809464
3/4" MNPT (DN 15) (Sigma 1 and Sigma 2)	4 (102)	1-3/4 (44)	924515
3/4" MNPT (DN 20) (Sigma 2)	5 (127)	2-1/4 (57)	803723
1" MNPT (DN 25) (Sigma 2, Sigma 3 and Makro)	5-1/4 (133)	2-1/2 (63)	803724
1-1/2" MNPT (DN 40) (Sigma 3 and Makro)	6-1/2 (165)	3-1/2 (89)	1029475

PTFE/PTFE (Fig. 1) Valve body and seals of PTFE (TT1)

1/2" MNPT (DN 10) (delta, Sigma 1 and Sigma 2) (PTFE/PTFE)	3-7/8 (98)	1-3/8 (35)	809466
3/4" MNPT (DN 15) (Sigma 1 and Sigma 2) (PTFE/PTFE)	4-1/8 (105)	1-3/4 (44)	924517
3/4" MNPT (DN 20) (Sigma 2) (PTFE/PTFE)	4-3/4 (121)	2-1/4 (57)	803725
1" MNPT (DN 25) (Sigma 2, Sigma 3 and Makro) (PTFE/PTFE)	5-3/8 (137)	2-1/2 (63)	803726

PVDF/PTFE (Fig. 1) Valve body of PVDF and seals of PTFE

1/2" MNPT (DN 10) (delta, Sigma 1 and Sigma 2) (PVDF/PVDF)	3-7/8 (98)	1-3/8 (35)	7803720
3/4" MNPT (DN 15) (Sigma 1 and Sigma 2) (PVDF/PVDF)	4-1/8 (105)	1-3/4 (44)	7803721
3/4" MNPT (DN 25) (Sigma 2, Sigma 3 and Makro) (PVDF/PVDF)	4-3/4 (121)	2-1/4 (57)	7803722
1" MNPT (DN 25) (Sigma 2, Sigma 3 and Makro) (PVDF/PVDF)	5-3/8 (137)	2-1/2 (63)	7803723
1-1/2" MNPT (DN 32) (PVDF/PVDF)			1006434

SS - Valve body of stainless steel, seals of PTFE

3/8" FNPT (DN 10) (delta, Sigma 1 and Sigma 2)	2-3/4 (70)	1-1/2 (38)	809467
1/2" FNPT (DN 15) (Sigma 1 and Sigma 2)	3 (76)	1-3/4 (44)	924518
3/4" MNPT (DN 20) (Sigma 2)	4-1/2 (114)	2-1/8 (54)	803727
1" MNPT (DN 25) (Sigma 2, Sigma 3 and Makro)	5-1/8 (130)	2-1/2 (63)	803728
1-1/2" MNPT (DN 32)			1006435
1/4" FNPT	2-3/4 (70)	1-1/2 (38)	803730
3/8" FNPT	2-3/4 (70)	1-1/2 (38)	803731

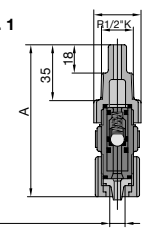
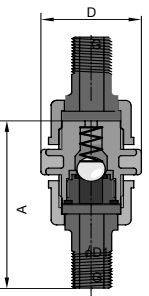
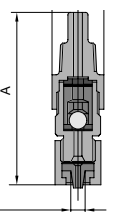
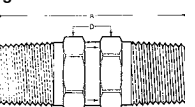
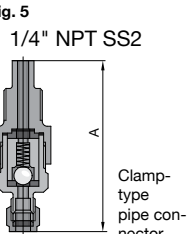
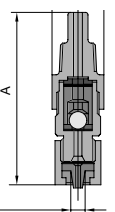
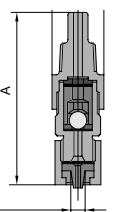
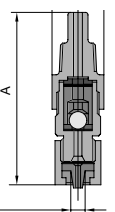
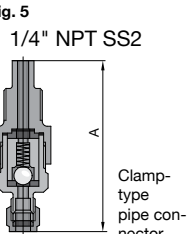
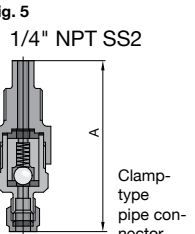
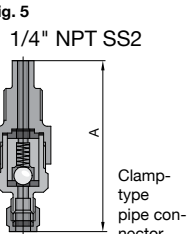
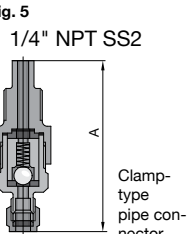
* See Figure 1, ** See Figure 2

Pump & Systems Accessories

Injection Valves

To connect the pump discharge line to the point of injection for installation in any position, except PTFE version without spring to be installed in a vertical position discharging upward. All valves except PTFE include a 7 psig (0.5 bar) Hastelloy-C spring.

Caution: Injection valves and injection lances should not be used as isolating elements or for antisiphon protection!

		Dim "A"	Part No.
		inches (mm)	
Fig. 1 	Polypropylene		
	Valve body of PP, o-rings of EPDM (PP1, PPE)		
	Connection 1/4" x 3/16" tubing x 1/2" MNPT injection end (Fig 1)	3-7/8 (98)	924681
	Connection 1/2" x 3/8" tubing x 1/2" MNPT injection end (Fig 1)	3-7/8 (98)	924596
Fig. 2 	Connection 1/2" MNPT for 0423/0230 (Fig 2)	5-1/4 (133)	809461
	Connection 3/8" PPE Injection Valve		7924586
	Valve body of PP, o-rings of Viton® (PP2, PPB)		
	Connection 1/4" x 3/16" tubing x 1/2" MNPT injection end (Fig 1)	3-7/8 (98)	7924681
Fig. 3 	Connection 1/2" x 3/8" tubing x 1/2" MNPT injection end (Fig 1)	3-7/8 (98)	7809478
	Connection 1/2" MNPT for 0423/0230 (Fig 2)	5-1/4 (133)	7809461
	Connection 3/8" PPB Injection Valve		7924587
	Valve body of PP, o-rings of EPDM-high viscosity (PP4)		
Fig. 4 	Connection 1/2" MNPT for PP4 (Fig 2)	5-3/8 (137)	7924521
	Valve body of PP, o-rings of Viton®-high viscosity (PP5)		
	Connection 1/2" MNPT for PP5 (Fig 2)	5-3/8 (137)	7809462
	PVC		
Fig. 5 	Valve body of PVC, o-rings of EPDM		
	Connection 1/4" x 3/16" tubing x 1/2" MNPT injection end (Fig 1)	3-3/4 (95)	7924580
	Connection 1/2" x 3/8" tubing x 1/2" MNPT injection end (Fig 1)	3-7/8 (98)	7924582
	Connection 1/2" MNPT (Fig 2)	5-3/8 (137)	7809460
Fig. 6 	Connection 3/8" NPE Injection Valve		7924583
	Valve body of PVC, o-rings of Viton®		
	Connection 1/4" x 3/16" tubing x 1/2" MNPT injection end (Fig 1)	3-3/4 (95)	924680
	Connection 1/2" x 3/8" tubing x 1/2" MNPT injection end (Fig 1)	3-7/8 (98)	924595
Fig. 7 	Connection 1/2" MNPT (Fig 2)	5-3/8 (137)	809460
	Connection 3/8" NPB Injection Valve		7924584
	PTFE		
	Body and o-rings of PTFE		
Fig. 8 	Connection 1/4" x 3/16" tubing x 1/2" MNPT injection end (Fig 3)	4-1/8 (105)	809488
	Connection 1/2" x 3/8" tubing x 1/2" MNPT injection end (Fig 3)	4-1/4 (108)	809481
	Connection 1/2" MNPT (not illustrated)		809462
	SS		
Fig. 9 	Valve body of stainless steel, seals of PTFE (SS1 & SS2)		
	Poppet check valve, connection 1/4" FNPT x 1/4" FNPT,		
	spring-loaded, adjustable by internal hex nut from 3-50 psig		
	(0.2-3.5 bar) (Fig 4)	1-5/8 (42)	7914587
Fig. 10 	Optional adapter for above valve 1/4" FNPT x 1/2" MNPT (Fig 5)		7914588
	Ball check valve, connection 1/4" FNPT inlet to 1/2" MNPT		
	discharge, 7 psig (0.5 bar) spring (Fig 5)	3-1/2 (89)	924597
	Ball check valve, connection 3/8" FNPT inlet to 3/8" MNPT		
Fig. 11 	discharge, 7 psig (0.5 bar) spring (not illustrated) (SS1)	3-1/2 (89)	809463
	(for 0423 & 0230 only)		
	PVT		
	Valve body of PVDF, seals of PTFE		
Fig. 12 	Connection 1/4" x 3/16" tubing x 1/2" MNPT injection end (Fig 1)	3-3/4 (95)	1024708
	Connection 1/2" x 3/8" tubing x 1/2" MNPT injection end (Fig 1)	3-7/8 (98)	1024714

Pump & Systems Accessories

Injection Valves

To connect the pump discharge line to the point of injection for installation in any position, except PTFE version without spring to be installed in a vertical position discharging upward. All valves except PTFE and Sigma/Meta/Makro HK have 7 psig (0.5 bar) Hastelloy-C spring.

Caution: Injection valves and injection lances should not be used as isolating elements or for antisiphon protection!

Fig. 1

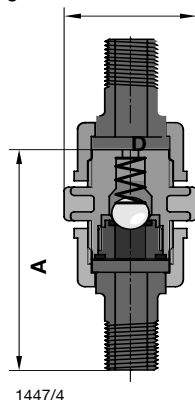


Fig. 2

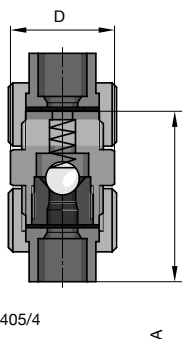
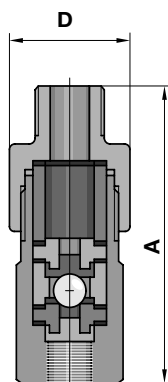


Fig. 3



Threaded Connection

Dimensions inches (mm)

Dim "A" Dim "D" Part No.

Polypropylene (Fig. 1) Valve body of PP, o-rings of EPDM (PP1)

1/2" MNPT (DN 10)	5-1/4 (133)	1-1/2 (38)	809461
3/4" MNPT (DN 15)	5-3/8 (137)	1-3/4 (44)	924521
3/4" MNPT (DN 20)	6-3/4 (171)	2-1/4 (57)	803710
1" MNPT (DN 25)	7-1/8 (181)	2-3/8 (60)	803711
1-1/2" MNPT (DN 40)	8-1/4 (210)	3-1/2 (89)	804761

PVC (Fig. 1) - Valve body of PVC, o-rings of Viton® (NP)

1/2" MNPT (DN 10)	5-3/8 (137)	1-1/2 (38)	809460
3/4" MNPT (DN 15)	5-3/8 (137)	1-5/8 (42)	924520
3/4" MNPT (DN 20)	6-3/4 (171)	2-1/4 (57)	803712
1" MNPT (DN 25)	7-1/8 (181)	2-3/8 (60)	803713
1-1/2" MNPT (DN 40)	8-1/4 (210)	3-1/2 (89)	804760

PTFE/PTFE (Fig. 1) - Valve body and seals of PTFE (TT1)

1/2" MNPT (DN 10)	(PTFE/PTFE)	4-7/8 (124)	1-3/8 (35)	809462
3/4" MNPT (DN 15)	(PTFE/PTFE)	5-1/2 (140)	1-3/4 (44)	924522
3/4" MNPT (DN 20)	(PTFE/PTFE)	6-7/8 (175)	2-1/4 (57)	803714
1" MNPT (DN 25)	(PTFE/PTFE)	7-1/4 (184)	2-1/2 (63)	803715
1-1/2" MNPT (DN 40)	(PTFE/PTFE)	8-1/4 (210)	3-1/2 (89)	804762

PVDF/PTFE (Fig. 1) - Valve body of PVDF and seals of PTFE

1/2" MNPT (DN 15)	(PVDF/PVDF)	4-7/8 (124)	1-3/8 (35)	7803724
3/4" MNPT (DN 15)	(PVDF/PVDF)	5-1/2 (140)	1-3/4 (44)	7803725
3/4" MNPT (DN 25)	(PVDF/PVDF)	6-7/8 (175)	2-1/4 (57)	7803726
1" MNPT (DN 25)	(PVDF/PVDF)	7-1/4 (184)	2-1/2 (63)	7803727
1-1/2" MNPT (DN 32)	(PVDF/PVDF)			1002783

SS - Valve body of stainless steel, seals of PTFE

3/8" FNPT (DN 10)	3-1/8 (79)	1-3/8 (35)	809463
1/2" FNPT (DN 15)	3-1/2 (89)	1-3/4 (44)	924523
3/4" MNPT (DN 20)	6-1/2 (165)	2-1/8 (54)	803716
1" MNPT (DN 25)	7-1/4 (184)	2-1/2 (63)	803717
1-1/2" MNPT (DN 40)	8-1/4 (210)	3-1/8 (79)	804763
1-1/2" MNPT (DN 32)			1002801

High pressure valves for HK pumps (Fig. 3)

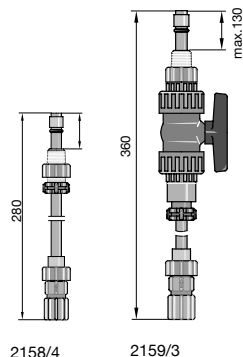
1/4" FNPT by 1/2" MNPT (DN 8)	4 (83)	1-5/8 (42)	803732
3/8" FNPT by 1/2" MNPT (DN 10)	4 (83)	1-5/8 (42)	803733

Pump & Systems Accessories

Injection Lances

Length of insertion variable from 3/4" to 6-1/2" (20 mm...165 mm) for large diameter pipes. Consisting of spring-loaded ball check injection valve, adjustable insertion pipe and elastomeric sleeve over injection port for backflow prevention. Materials: Hastelloy C spring, Ceramic valve ball, EPDM and silicon o-rings. Max. working pressure 87 psig (6 bar). Requires 1/2" FNPT pipe tap.

Note: For units with isolating valve, the valve may not be closed until the insertion pipe has been pulled out through the valve. Call factory for 3/4" and 1" connection.



Polypropylene (EPDM o-rings)

Connection 1/4" x 3/16" tubing to 1/2" MNPT

Part No.

1021530

Connection 1/2" x 3/8" tubing to 1/2" MNPT

1021530

same, but with ball-type isolating valve

Connection 1/4" x 3/16" tubing to 1/2" MNPT

1021531

Connection 1/2" x 3/8" tubing to 1/2" MNPT

1021531

PVC (Viton® o-rings)

Connection 1/4" x 3/16" tubing to 1/2" MNPT

1021528

Connection 1/2" x 3/8" tubing to 1/2" MNPT

1021528

same, but with ball-type isolating valve

Connection 1/4" x 3/16" tubing to 1/2" MNPT

1021529

Connection 1/2" x 3/8" tubing to 1/2" MNPT

1021529

Note: For brass 3/4" and 1" corporation stops, please call factory.

In-line check valve for tubing



1856/4

Polypropylene

With connectors on both ends for installation in flexible tubing, valve body of PP, o-rings of EPDM, with valve ball, spring-loaded with Hastelloy C spring, 7 psig (0.5 bar).

By using different Connector Sets, different sizes of tubing from 1/4" to 1/2" can be connected with each other.

Connection for tubing 1/4" x 3/16"

809434

Connection for tubing 1/2" x 3/8"

809436

PVC

With connectors on both ends for installation in flexible tubing, valve body of PVC, o-rings of Viton®, with valve ball, spring-loaded with Hastelloy C spring, 7 psig (0.5 bar).

By using different Connector Sets, different sizes of tubing from 1/4" to 1/2" can be connected with each other.

Connection for tubing 1/4" x 3/16"

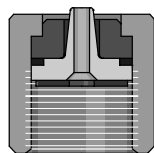
809417

Connection for tubing 1/2" x 3/8"

809415

Pump & Systems Accessories

Connector Sets



2181/4

Description

Part No.

PP/VITON® for hose type 1/4" x 3/16"	817166
PP/VITON® for hose type 1/2" x 3/8"	817171
PP/VITON® for hose type 3/8" x 1/4"	817168
PP/EPDM for hose type 1/4" x 3/16"	817150
PP/EPDM for hose type 1/2" x 3/8"	817155
PP/EPDM for hose type 1/4" x 1/2"	817163
PP/EPDM for hose type 3/8" x 1/4"	817151
PVC/Viton® for hose type 1/4" x 3/16"	817050
PVC/Viton® for hose type 1/2" x 3/8"	817055
PVC/Viton® for hose type 1/4" x 1/2"	817068
PVC/Viton® for hose type 3/8" x 1/4"	817051
PVC/EPDM for hose type 1/4" x 3/16"	817060
PVC/EPDM for hose type 1/2" x 3/8"	740160
PVC/EPDM for hose type 3/8" x 1/4"	7817049
PTFE for hose type 1/4" x 3/16"	817201
PTFE for hose type 1/2" x 3/8"	791199
PVT for hose type 1/4" x 3/16"	1023246
PVT for hose type 1/2" x 3/8"	1024584
PVT for hose type 3/8" x 1/4"	7781457
PVT for hose type 8x4 mm (single only)	1033148

Tubing

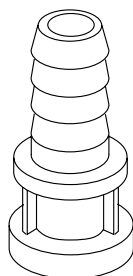
Suction and discharge tubing

Max. Operating . Pressure Rating (psig)

Part No.

PVC soft 1/4" x 3/16" (for suction side only)	7	7037004
PVC soft 1/2" x 3/8" (for suction side only)	7	7037009
PVC fabric reinforced 1/4" x 1/2"	232	37032
PE 1/4" x 3/16"	100	7037005
PE 1/2" x 3/8"	100	7037010
PE 3/8" x 1/4"		7037011
Teflon (FEP) 1/4" x 3/16"	100	7037426
Teflon (FEP) 1/2" x 3/8"	100	7037428
Teflon (FEP) 8 x 4 mm	363	1033166

Hose Barbs



Material (all 1/2" DN 10)

Part No.

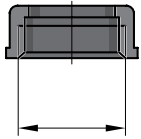
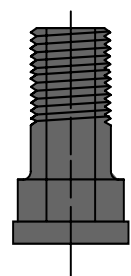
PP	800657
PVC	800554
PTFE	811572
316 SS	810536

Material (all 3/4" DN 15)

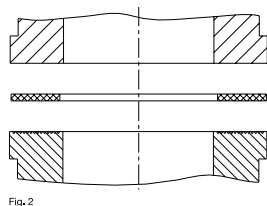
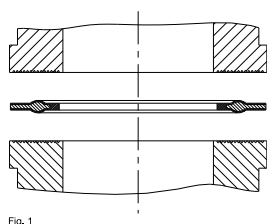
PP	800655
PVC	811407
PTFE	811424
316 SS	810567

Pump & Systems Accessories

Union Nuts & Inserts

	Pump	Union Nut	Threaded Insert	Union Nut	Insert	Union Nut	Threaded Insert
		Material	Material	Thread	Thread	Part No.	Part No.
 1031/4 Union nut	High Viscosity	PP	PP	DN 10	1/2" MNPT	358613	1017379
	Makro	PP	PP	DN 20	3/4" MNPT	358615	1017381
	Makro	PP	PP	DN 25	1" MNPT	358616	1017382
	Makro	PP	PP	DN 40	1-1/2" MNPT	358618	7358611
	Makro	PVC	PVC	DN 20	3/4" MNPT	356564	1017381
	Makro	PVC	PVC	DN 25	1" MNPT	356565	1017382
	Makro	PVC	PVC	DN 40	1-1/2" MNPT	356567	7358613
	Makro	PVDF	PVDF	DN 20	3/4" MNPT	358815	1017381
	Makro	PVDF	PVDF	DN 25	1" MNPT	358816	1017382
	Makro	PVDF	PVDF	DN 40	1-1/2" MNPT	358818	7358615
 1486/4 Threaded insert	Sigma	PVDF	PVDF	DN 10	1/2" MNPT	358813	7358634
	Sigma	PVDF	PVDF	DN 15	3/4" MNPT	358814	1017380
	Sigma	PVDF	PVDF	DN 20	3/4" MNPT	358815	1017381
	Sigma	PVDF	PVDF	DN 25	3/4" MNPT	358816	7358645
	Sigma	PVDF	PVDF	DN 25	1" MNPT	358816	1017382
	Sigma/3	PVDF	PVDF	DN 32	1-1/2" MNPT	1003639	1017383
	Sigma	SS	SS	DN 10	3/8" FNPT	805270	7805285
	Sigma	SS	SS	DN 15	1/2" FNPT	805271	7805286
	Makro	SS	SS	DN 20	3/4" MNPT	805272	7358609
	Sigma	SS	SS	DN 25	3/4" MNPT	805273	7358646
	Makro/Sigma	SS	SS	DN 25	1" MNPT	805273	7358610
	Sigma/3	SS	SS	DN 32	1-1/2" MNPT	805274	7358648
	Makro	SS	SS	DN 40	1-1/2" MNPT	805275	7358617

Seals



Molded composite seal

M20 x 1.5
 DN10
 DN15
 DN20
 DN25
 DN32
 DN40
 DN50

PTFE, P/N

1021686
 1019364
 1019365
 1019366
 1019367
 1019353
 1019368
 1019369

Flat Seal

DN10
 DN15
 DN25
 DN32
 DN40
 DN50

Viton®, P/N

1019315
 1019317
 1019319
 1019321
 1019323
 1019325

EPDM, P/N

1019314
 1019316
 1019318
 1019320
 1019322
 1019324

Pump & Systems Accessories

Gaskets

Gaskets

Virgin White Teflon gaskets for PTFE

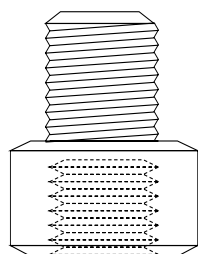
Part No.

DN 10	Sigma X	483957
DN 15	Sigma X	483921
DN 20	Sigma X	483922

Note: The material make-up of the standard gaskets are teflon with a Viton® center. For applications using chemicals that react negatively with Viton®, the above gaskets are needed.

Tubing Adapters

Adapters

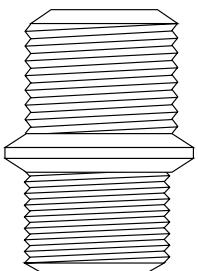


M20 x 1.5 Female by 1/2" MNPT

PVC	7744060
PVDF	7358652

M20 x 1.5 Female Socketweld

PVC	7740129
CPVC	7740881
PVDF	7745882



M20 x 1.5 Male by 1/2" MNPT

PVC/EPDM	7500856
PVC/Viton®	7500855
PVDF	7358660

M20 x 1.5 Male Socketweld

PVC	7740130
CPVC	7745158
PVDF	7745598



Right-angled PVC threaded connector

Connector for the beta b, gamma/X and gamma/XL auto-degassing liquid ends required when mounting multifunction valves; optionally used to direct discharge flow upwards. Angle union 90°.

Type PCB (PVC/Viton®) 1003318

Type PCE (PVC/EPDM) 1003472



Tubing fold preventer

Fits on top of the beta b, gamma/X and gamma/XL auto-degassing liquid ends, used to prevent a fold in the bypass line which is fed back to the tank. This is required when using soft tubing, however rigid tubing is standard.

for tubing size (mm)

1/4" x 3/16" (6mm)	1001844
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Pump & Systems Accessories

Backpressure & Pressure Relief Valves

Backpressure, antisiphon and pressure relief valves



Backpressure (2-port) valves may be used in-line to provide a constant discharge pressure for protection from siphoning, or they may be teed off of the discharge line for pressure relief, discharging back to the source tank or to the pump suction line to create a bypass.

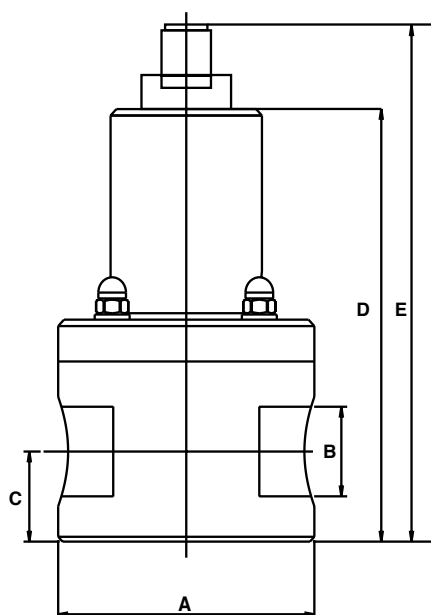
Pressure relief (3-port) valves are mounted in the discharge line, featuring a separate relief port which discharges back to the source tank or to the pump suction line to create a bypass.

Backpressure valves provide several functions: they improve repeatability by providing a constant discharge pressure; they provide antisiphon protection for discharge into pressurized water lines or vacuums, or where suction head exceeds discharge head; and they minimize pulsation when used in conjunction with a pulsation dampener.

In-line backpressure/antisiphon and pressure relief valves

These adjustable backpressure (2-port) and pressure relief (3-port) valves have FNPT ports and require tubing adapters for use with flexible tubing.

Can be adjusted with screwdriver.



Dimensions in inches (mm)

A	B	C	D	E
2.6 (65)	1/4 NPT	1.2 (31)	4.9 (125)	6.2 (158)
2.6 (65)	1/2 NPT	1.2 (31)	4.9 (125)	6.2 (158)
3.5 (88)	3/4 NPT	1.1 (28)	5.4 (136)	6.7 (169)
3.9 (98)	1 NPT	1.4 (36)	5.7 (145)	7.0 (178)
4.6 (118)	1-1/2 NPT	2.2 (56)	9.0 (229.5)	10.3 (260.5)
4.6 (118)	2 NPT	2.2 (56)	9.0 (229.5)	10.3 (260.5)

Pump & Systems Accessories

Pressure Relief Valves

1/4" FNPT valves

Material

PP
PVC
PVDF
316 SS

Backpressure Valve (2-port)

1009444
1009445
1009446
1009447

Pressure Relief Valve (3-port)

1009452
1009453
1009454
1009455

Tubing Adapters

(1 required per valve port): 1/4" x 3/16" tubing x 1/4" MNPT

PP/EPDM
PP/Viton®
PVC/EPDM
PVC/Viton®

Part No.

7500060
7500058
7500064
7500062

1/2" FNPT valves

Material

PP
PVC
PVDF
316 SS

Backpressure Valve (2-port)

1006846
1006850
1006854
1008796

Pressure Relief Valve (3-port)

1006858
1006862
1006866
1008800

Tubing Adapters

(1 required per valve port): 1/2" x 3/8" tubing x 1/2" MNPT

PP/EPDM
PP/Viton®
PVC/EPDM
PVC/Viton®

Part No.

7500061
7500059
7500065
7500063

3/4" FNPT valves

Material

PP
PVC
PVDF
316 SS

Backpressure Valve (2-port)

1006847
1006851
1006855
1008797

Pressure Relief Valve (3-port)

1006859
1006863
1006867
1008801

1" FNPT valves

PP
PVC
PVDF
316 SS

1006848
1006852
1006856
1008798

1006860
1006864
1006868
1008802

1-1/2" FNPT valves

PP
PVC
PVDF
316 SS

1006849
1006853
1006857
7302243

1006861
1006865
1006869
7302261

2" FNPT valves

PP
PVC
PVDF
316 SS

1009448
1009449
1009450
7302247

1009456
1009457
1009458
7302265

Spare Parts Sets

Contains 1 of each: compression spring, diaphragm, spring plate, and pressure adj. disc.

SPK 1/4" - 1/2"
SPK 3/4" - 1"
SPK 1-1/2" - 2"

1035446
1035447
1035448

1035446
1035447
1035448

Spare diaphragms

1/4" - 1/2" valve PTFE/EPDM
3/4" - 1" valve PTFE/EPDM
1-1/2" - 2" valve PTFE/EPDM

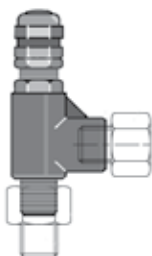
1006813
1006814
1006815

1006813
1006814
1006815

Pump & Systems Accessories

Pressure Relief Valves

Pressure relief valves



1112/4

High pressure relief valve, adjustable, 1/4" and 1/2" NPT for Sigma X/ Makro HK and ProMus pumps

Can also be used as a backpressure valve for < 30 gph (113 L/h).

These valves are without springs, which must be ordered separately.

Materials: Stainless steel/Viton®

Connection: 1/4" NPT male and female thread

Part No.

7202505

Materials: Stainless steel/EPDM

Connection: 1/4" NPT male and female thread

7744507

Spring: psig (bar)

Color:

50 - 350 (3.5 - 25)

blue

7202519

350 - 750 (25 - 50)

yellow

7202520

750 - 1500 (50 - 100)

violet

7202525

1500 - 2250 (100 - 155)

orange

7202524

2250 - 3000 (155 - 205)

brown

7202523

3000 - 4000 (205 - 275)

white

7202522

4000 - 5000 (275 - 340)

red

7202521

Materials: Stainless steel/Viton®

Connection: 1/2" NPT male and female thread

7744508

Materials: Stainless steel/EPDM

Connection: 1/2" NPT male and female thread

7744509

Spring: psig (bar)

Color:

50 - 350 (3.5 - 25)

blue

7744510

350 - 750 (25 - 50)

yellow

7744511

750 - 1500 (50 - 100)

violet

7744512

product
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metering pumpsmotor-driven
metering pumpspump spare parts &
accessoriesDULCOMETER®
instrumentationDULCOTEST®
sensorspolymer blending &
dry feed solutions

Pump & Systems Accessories

Pulsation Dampeners

Pulsation dampeners operate on the principle that gas is compressible and fluid is not. The pulsation dampener consists of an air chamber containing compressed air, a fluid chamber connected to the pump's suction or discharge line, and a bladder or bellows which separates the air and fluid.

All models feature a Schrader (bicycle) valve and pressure gauge for charging the air chamber on-site.

PVDF/Nordel pulsation dampeners are recommended for sodium hydroxide (caustic) applications. Viton® pulsation dampeners are recommended for sodium hypochlorite applications.

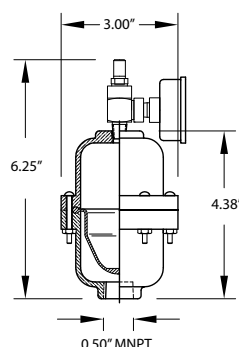
Multiply the pump's displacement per stroke (mL) times 26 to get minimum pulsation dampener volume (mL) to achieve 90% reduction in pulsation.

**** We recommend using pressure relief valves with the pulsation dampeners. ****

General Specifications

Maximum pressure:	150 psig (polypro, PVDF and PTFE), 300 psig (SS)
Temperature range:	
Nordel bladder:	-60°F to 280°F (-51°C to 138°C)
Viton® bladder:	30°F to 350°F (-1°C to 177°C)
HYPALON® bladder:	-20°F to 275°F (-29°C to 135°C)
PTFE bellows:	40°F to 220°F (4°C to 104°C)
Polypro housing :	32°F to 175°F (0°C to 79°C)
PVC housing:	32°F to 140°F (0°C to 60°C)
PVDF housing:	10°F to 250°F (-12°C to 121°C)
PTFE housing:	-20°F to 125°F (-29°C to 52°C)
SS housing:	32°F to 200°F (0°C to 93°C)

*Teflon bellows are smaller in volume



10 CU IN
(164 mL)

131 mL (8 cu. in.) Models

SS housing: 3/8" FNPT, 1 port
PTFE bellows

PVDF housing: 1/2" FNPT, 1 port
PTFE bellows

164 mL (10 cu. in.) Models

CPVC housing: 1/2" FNPT, 1 port
Nordel bladder (EPDM)
Viton® bladder
HYPALON® bladder

Polypro housing: 1/2" FNPT, 1 port
Nordel bladder (EPDM)

PVDF housing: 1/2" FNPT, 1 port
Nordel bladder (EPDM)
Viton® bladder

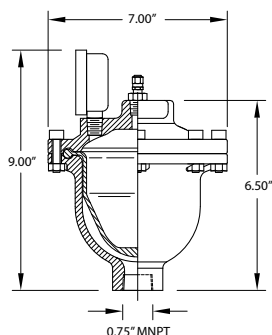
Shipping Wt. lbs. (kg)	Model	Bladder size	Part No.
3 (1.4)	CTS1020 T	III	7253205
1 (0.9)	FL12NK	III	1080264
1 (0.9)	FL12NCP	III	1080253
1 (0.9)	FL12NCP	III	1080252
1 (0.9)	RC-10X-H50	III	7744098
1 (0.9)	CTP1005 ND 5	III	1048663
1 (0.9)	CTK1005 ND 5	III	7744100
1 (0.9)	FL12NK	III	1080265

Viton® and HYPALON® are registered trademarks of DuPont Dow Elastomers

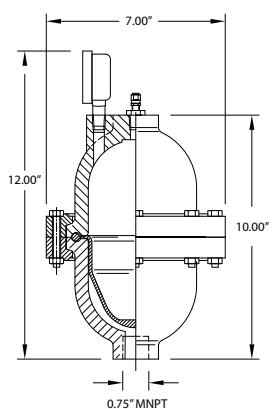
Pump & Systems Accessories

Pulsation Dampeners

Pulsation dampeners (cont.)



36 CU IN
(600 mL)



85 CU IN
(1393 mL)

262 mL (16 cu. in.) Models

PVC housing: 3/4" FNPT, 1 port
PTFE bellows

PVDF housing: 3/4" FNPT, 1 port
PTFE bellows

SS housing: 3/4" FNPT, 1 port
PTFE bellows

600 mL (36 cu. in.) Models

PVC housing: 3/4" FNPT, 1 port
Nordel bladder
Viton® bladder
HYPALON® bladder

Polypro housing: 3/4" FNPT, 1 port
Nordel bladder

PVDF housing: 3/4" FNPT, 1 port
Viton® bladder

SS housing: 3/4" FNPT, 1 port
Viton® bladder

1393 mL (85 cu. in.) Models

PVC housing: 3/4" FNPT, 1 port
PTFE bellows

SS housing: 3/4" FNPT, 1 port
PTFE bellows

PVDF housing: 3/4" FNPT, 1 port
PTFE bellows

PVC housing: 3/4" FNPT, 1 port
Nordel bladder
Viton® bladder
HYPALON® bladder

PVDF housing: 3/4" FNPT, 1 port
Nordel bladder (EPDM)
Viton® bladder

1998 mL (122 cu. in.) Models

PVC housing: 2" FNPT, 1 port
PTFE bellows

2867 mL (175 cu. in.) Models

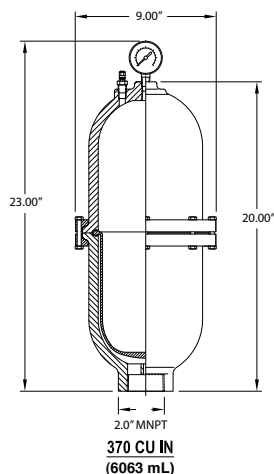
PVC housing: 2" FNPT, 1 port
HYPALON® bladder

Shipping Wt. lbs (kg)	Model	Bladder Size	Part No.
7 (3.2)	CT1311 T	II	7744211
7 (3.2)	CT1401 T	II	7253234
11 (5.0)	CT3120 T	II	7253237
7 (3.2)	FL85NP	II	1080269
7 (3.2)	FL401NP	II	1080267
7 (3.2)	CT1311 H	II	7740946
6 (2.7)	CT1301 ND	II	7253230
7 (3.2)	FL40NK	II	1080268
11 (5.0)	CT3120 V	II	7253238
10 (4.5)	CT311 T	II	7253229
14 (6.4)	CT3020 T	II	7253206
8 (3.6)	CT401 T	II	7253219
6 (2.7)	CT311 ND	II	7253221
6 (2.7)	FL85NP	II	1080266
6 (2.7)	CT311 H	II	7740947
7 (3.2)	CT401 ND	II	7253209
8 (3.6)	CT401 V	II	7253210
16 (7.3)	CT911 T	I	7253228
13 (5.9)	CT911 H	I	7740948

Pump & Systems Accessories

Pulsation Dampeners

Pulsation dampeners (cont.)



5822 mL (355 cu. in.) Models

PVC housing: 2" FNPT, 1 port
PTFE bellows

Shipping Wt. lbs (kg)	Model	Bladder Size	Part No.
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18 (8.2)	CT111 T	I	7253215
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PVDF housing: 2" FNPT, 1 port
PTFE bellows

21 (9.5)	CT201 T	I	7253215
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SS housing: 2" FNPT, 1 port (Fig. 4)
PTFE bellows

40 (18.1)	CT2400 T	I	7253211
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6063 mL (370 cu. in.) Models

Polypro housing: 2" FNPT, 1 port (Fig. 4)
Viton® bladder

15 (6.8)	CT101 V	I	7253213
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Note: Other sizes and materials available upon request.

High pressure (1000psi) pulsation dampeners for ProMus pumps only.

66 mL (4 cu. in.) Models

316 Stainless Steel housing: 3/8" FNPT, 1 port (not illustrated)
Nordel bladder (EPDM)

Model	Bladder Size	Part No.
H1120 ND	III	7744387

164 mL (10 cu. in.) Models

316 Stainless Steel housing: 3/8" FNPT, 1 port (not illustrated)
Nordel bladder (EPDM)

H1020 ND	III	7744388
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600 mL (36 cu. in.) Models

316 Stainless Steel housing: 3/8" FNPT, 1 port (not illustrated)
Nordel bladder (EPDM)

H3120 ND	II	7744389
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Pump & Systems Accessories

Pulsation Dampeners

	Model	Bladder Size	Part No.
Nordel (EPDM) bladders	1000-28	III	7740208
	401-28	II	7740202
	201-28	I	7740205
Viton bladders	1000-31	III	7740209
	401-25	II	7740203
	201-25	I	7740206
Hypalon bladders	1000-30	III	7740959
	401-30	II	7740960
	201-30	I	7740961
PTFE bellows	301-10	II	7740204
	101-10	I	7740207

High pressure charging hose

Charging hose consists of an 8 foot (2.4 m) length of 5000 psi hose with a 1/4" NPT (M) fitting at one end, for connection to a nitrogen bottle regulator and a charging adapter with purge valve and gauge at the other end.

	Model	Part No.
1/4" air inlet and 1/8" fill valve	701-00	7744376

Inlet stabilizers

An inlet stabilizer will improve flow conditions to the inlet side of a pump and protect and extend the service life of all inlet system components. Inlet stabilizers must be mounted as close to the pump's inlet connection as possible, and no more than 10 pipe diameters away. All units include a 30-0-30 vacuum/pressure gauge, air venturi, and ball valve for charging bladder chamber. Units must be sized similar to pulsation dampeners, i.e. $26 \times (\text{mL}/\text{stroke}) = \text{minimum required inlet stabilizer volume}$. **Note:** Requires a compressed air supply be available for initial bladder charging and periodic readjustment as necessary.

	Model	Size	Part No.
1393 mL (85 cu. in.) Models (for 3/4" models)			
PVC housing:			
Viton® bladder	J3111V	II	7740859
Nordel bladder (EPDM)	J3111ND	II	7744306
PVDF housing:			
Viton® bladder	J401V	II	7740860
6063 mL (370 cu. in.) Models (for 2" models)			
PVC housing:			
Viton® bladder	J1111V	I	7744307
HYPALON® bladder	J1111H	I	7744308
Nordel bladder (EPDM)	J1111ND	I	7744309
PVDF housing:			
Viton® bladder	J201V	I	7744310

Materials shown are in contact with process fluid.
Other material and sizes are available. Please consult factory.

Pump & Systems Accessories

Calibration Columns

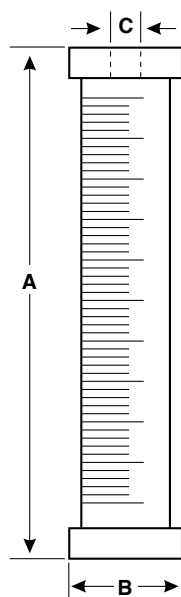
Calibration Columns are installed on the suction side of the metering pump and are isolated with two valves installed with the columns. The top of the column is vented back to the supply tank or drain. The calibration columns are filled to the top mark then the valve from the tank is closed. Turning on the metering pump will draw down the liquid providing a simple means to verify the accuracy of the pump flow rate. USGPH (gallons per hour) and mL (milliliters) are shown on the columns.

Glass Calibration Columns

- M Borosilicate glass tube
- M Protective outer shell
- M GPH & mL scale
- M Max. column pressure is 15 psi

Clear PVC Calibration Columns

- M Clear tube for easy GPH reading
- M Sealed top
- M NSF-61 approved materials
- M GPH & mL scale
- M Max. column pressure is 15 psi

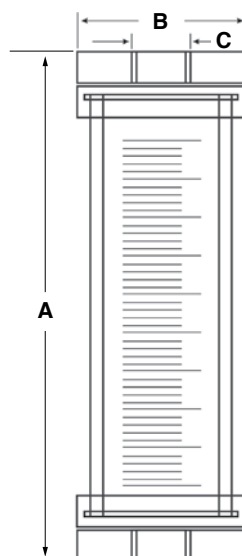


Clear PVC Calibration Column (Threaded)

Column Volume	Cap Material	Height A	Diameter B	Fitting Size C	Capacity (GPH)	Scale (mL)	Part No.
100 mL	PVC	11.00"	1.50"	1/2" NPT	3.2	2.0	7501331
250 mL	PVC	11.75"	2.10"	1/2" NPT	8.0	2.0	7501332
500 mL	PVC	13.00"	2.50"	1/2" NPT	16.0	5.0	1048428
500 mL	PVC	13.00"	2.50"	3/4" NPT	16.0	5.0	7501333
1,000 mL	PVC	22.00"	2.50"	3/4" NPT	32.0	5.0	7501334
2,000 mL	PVC	20.00"	3.95"	1" NPT	64.0	10.0	7501335
4,000 mL	PVC	37.00"	3.95"	1" NPT	128.0	10.0	7501336
10,000 mL	PVC	25.75"	7.25"	2" NPT	320.0	20.0	7501337
20,000 mL	PVC	47.75"	7.25"	2" NPT	640.0	20.0	7501338

Clear PVC Calibration Column (Socket)

Column Volume	Cap Material	Height A	Diameter B	Fitting Size C	Capacity (GPH)	Scale (mL)	Part No.
100 mL	PVC	11.00"	1.50"	1/2" SKT	3.2	2.0	7501339
250 mL	PVC	11.75"	2.10"	1/2" SKT	8.0	2.0	7501340
500 mL	PVC	13.00"	2.50"	3/4" SKT	16.0	5.0	7501341
1,000 mL	PVC	22.00"	2.50"	3/4" SKT	32.0	5.0	7501342
2,000 mL	PVC	20.00"	2.50"	1" SKT	64.0	10.0	7501343
4,000 mL	PVC	37.00"	3.95"	1" SKT	128.0	10.0	7501344
10,000 mL	PVC	25.75"	3.95"	2" SKT	320.0	20.0	7501345
20,000 mL	PVC	47.75"	7.25"	2" SKT	640.0	20.0	7501346



Glass Calibration Column

Column Volume	Cap Material	Height A	Diameter B	Fitting Size C	Capacity (GPH)	Scale (mL)	Part No.
100 mL	PVDF	14.93"	2.50"	1/2" NPT	3.2	2.0	7501347
100 mL	SS	14.93"	2.50"	1/2" NPT	3.2	2.0	7501355
200 mL	PVDF	20.93"	2.50"	1/2" NPT	6.4	2.0	7501348
200 mL	SS	20.93"	2.50"	1/2" NPT	6.4	2.0	7501356
500 mL	PVDF	14.99"	3.50"	3/4" NPT	16.0	5.0	7501349
500 mL	SS	14.99"	3.50"	3/4" NPT	16.0	5.0	7501357
1,000 mL	PVDF	26.99"	3.50"	3/4" NPT	32.0	5.0	7501350
1,000 mL	SS	26.99"	3.50"	3/4" NPT	32.0	5.0	7501358
2,000 mL	PVDF	27.33"	5.00"	1" NPT	63.0	10.0	7501351
2,000 mL	SS	27.33"	5.00"	1" NPT	63.0	10.0	7501359
4,000 mL	PVDF	39.28"	5.00"	1" NPT	127.0	10.0	7501352
4,000 mL	SS	39.28"	5.00"	1" NPT	127.0	10.0	7501360

O-Ring material is made of Viton®

Pump & Systems Accessories

Flow Monitor

Ultra-sound Flow Meter DulcoFlow®

Used for the measurement of pulsing flows ranging from 0.02-13 gph. All parts that come into contact with the feed chemical are made from PVDF, ensuring that even aggressive feed chemicals can be measured without a problem. The device is installed approximately 12" inches downstream of the pump in the metering line. Interfering influences, such as air bubbles, are detected and transmitted to the DulcoFlow® unit as an error message. The use of the delta is only fast with metering stroke versions.

Alongside the recording and measurement of flows, the flow meter DulcoFlow® can also be used to monitor individual metering strokes, if "Contact output" is selected for signal output in the identity code. In this case, the device is calibrated to the lifting volume set on the pump. A lower and an upper limit can be entered and if the figure falls below or exceeds these limits, no feedback is transmitted to the pump. As a result, this generates an error message.

The device is designed for wall or panel mounting.

- The cumulative volume can be calculated in gallons or liters
- Direct display of the flow and number of strokes recorded
- 2 LEDs for stroke feedback and operating status
- Analog output or frequency output for flow volume
- Contact output for direct connection to the metering pump (single stroke monitoring)



Technical data

Measuring range:	0.03-13 gph	Media to be measured	
Accuracy:	± 2% after calibration using actual chemical	Connector:	Hose connection with nominal width 1/2" x 3/16", 1/2" x 3/8", 3/8" x 1/4", 1/2" MNPT
Analog output:	4-20 mA (recording or control)	Medium pressure:	44-232 psi * (minimum 44 psi needed for consistent measurement)
Frequency output:	Configurable, max. 10 kHz	Medium temperature:	14-113 °F
Protection class:	IP 65	*A backpressure valve is recommended	
Power supply:	100-230 V AC / 50/60 Hz		
Max. viscosity of fluid:	2000 cP		
Dimensions:	7.22" x 4.76" x 4.38" (HxWxD)		
Smallest measurable	0.03 ml/stroke (DFMa05)		
Stroke volume:	0.05 ml/stroke (DFMa08)		
Note: Max. distance from the pump discharge to the DulcoFlow unit is 12" inches.			

Identcode Ordering System

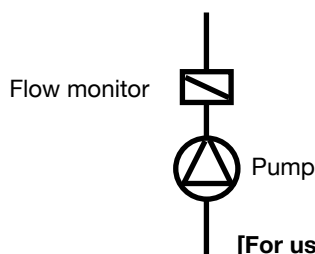
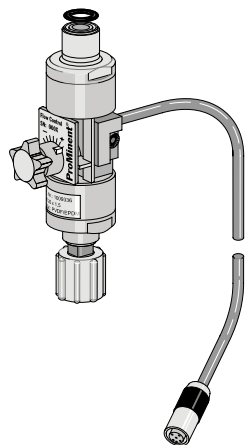
DFMA	Series Version:		
05	beta® 1000 - 0413/0713, gamma/ X 1602 - 0414/0715, gamma/ XL 1608 - 1612		
08	beta® 1604 - 0420, gamma/ X 1604 - 0424, gamma/ XL 1020 - 0450, Sigma X: Sigma/1		
	Seal Material:		
	T	PTFE	
		Connection:	
		1	1/4" x 3/16"
		2	3/8" x 1/4"
		3	1/2" x 3/8"
		Electrical Connection:	
		D	N. American Plug 115 V
		Signal Output:	
		1	4-20 mA output
		2	Contact Output
		3	with current and contact exit
		4	exit for controlled pump
		Design:	

Pump & Systems Accessories

Metering Monitors

Adjustable metering monitor “Flow Control”

Supplied with connection cable for assembly directly to liquid end. Monitors individual strokes according to the float and orifice principle. The partial quantity of chemical flowing past the float is adjusted from the total stroke volume via the adjusting screw so that an alarm relay is actuated if the flow falls 20%. The user can select the number of incomplete strokes permitted (between 1 and 125) in accordance with the actual process requirements.



[For use with low-viscosity (water-like) fluids only].

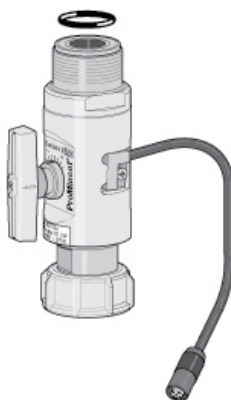
Materials:

Flow meter: PVDF
 Float: PTFE-coated
 O-rings: Viton® B/EPDM

For gamma/L series in material versions PP, PVDF, NP and TT.

Flow Control	Material	Pump type	Part No.
Flow Control type I	PVDF, EPDM	1000, 1601, 1602	1009229
Flow Control type II	PVDF, EPDM	1005, 1605, 0708, 1008, 0413 0713, 0220, 0420, 0232	1009336
Flow Control type I	PVDF, Viton® B	1000, 1601, 1602	1009335
Flow Control type II	PVDF, Viton® B	1005, 1605, 0708, 1008, 0413 0713, 0220, 0420, 0232	1009338

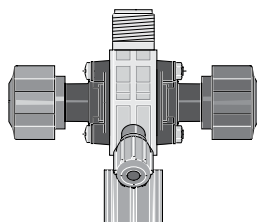
For Sigma HM with connection cable for assembly to liquid end.



Flow Control	Material	Pump type	Part No.
Flow Control type III (Sigma/ 1)	PVDF, EPDM	12017, 10022, 12035, 10044 10050, 07065	1021168
	PVDF, Viton® B	12017, 10022, 12035, 10044 10050, 07065	1021169
Flow Control type III (Sigma/ 1 & 2)	PVDF, EPDM	07042, 04084, 04120, 12050 12090, 12130	1021170
	PVDF, Viton® B	07042, 04084, 04120, 12050 12090, 12130	1021171
Flow Control type IV (Sigma/ 2 & 3)	PVDF, EPDM	07120, 04350, 120145, 120190 120270	1021164
	PVDF, Viton® B	07120, 04350, 120145, 120190 120270	1021165
Flow Control type V (Sigma/ 3)	PVDF, EPDM	07410, 07580, 04830	1021166
	PVDF, Viton® B	07410, 07580, 04830	1021167

Pump & Systems Accessories

Multifunction Valve



The ProMinent® multifunctional valve is simple to operate using smooth action rotary knobs, which return to their initial position on release. This ensures safe operation even under difficult access conditions. The ProMinent® multifunctional valve is made of PVDF and can be used with virtually all chemicals.

Back pressure valve, opening pressure approx. 22 psi (1.5 bar), with open discharge or positive pressure on the suction side (**black rotary knob**)

Relief valve, opening pressure approx. 87, 145 or 232 psi (6, 10 or 16 bar) (**red rotary knob**)

Priming aid with pending back pressure, no need to de-pressurize pipes

Pressure relief, e.g. prior to servicing

Warning: Back pressure valves are not intended as completely sealed units!

Caution: The bypass line must always be connected.

Materials in contact with chemicals:

Valve body PVDF
Diaphragm PTFE-coated
O-rings FKM and EPDM (enclosed)

Technical data:

Type	Relief opening pressure*		Connection	Bypass connector	Part Number
	psig	(bar)			
Size I	232	(16)	6 - 12	6/4	792011
Size I	145	(10)	6 - 12	6/4	791715
Size I	87	(6)	6 - 12	6/4	1005745
Size II	145	(10)	6 - 12	12/9	792203
Size II	87	(6)	6 - 12	12/9	740427
Size III	145	(10)	DN 10	12/9	792215

* The relief opening pressure given above is the pressure at which the valve begins to open. The pressure can be up to 50 % higher until the valve is fully open depending on the type of pump.

Application: multifunctional valves

Size I ALPc 1001, 1002, 1004, 1008, 0708
beta b, gamma/ L type 1000, 1601, 1602, 1604, 1605, 1005, 1008, 0708, 0413, 0220
gamma/ X type 1602, 1604, 1009, 0708, 0414, 0220
gamma/ XL type 1608, 1612

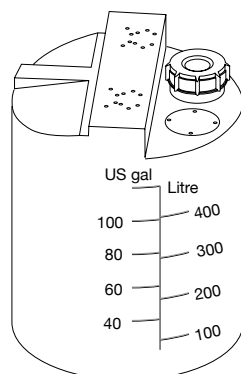
Size II ALPc 0419, 0230
Beta b, gamma/ L type 1605, 1008, 0713, 0420, 0232
gamma/ X type 1009, 0715, 0424, 0245
gamma/ XL type 1020, 0730

Size III gamma/ XL type 0450, 0280
For material design PP, PV, NP, TT

Pump & Systems Accessories

Tanks

Chemical tanks



Made of translucent UV-stabilized polyethylene, with gallon/litre scale, screw cap. Mounting platforms for ProMinent metering pumps and mixers. All tanks are specifically developed to maximize toughness. These tanks are impact, stress, and chemical resistant. Maximum allowable temperature 180°F (82°C). Tank opening (screw cap) diameter for 15 - 132 gal.: 6.5". Tank opening (screw cap) diameter for 220 and 300 gal.: 5-1/4".

Capacity		O.D.		Height		Empty Weight		Part No.
gallon (litre)		in.	(mm)	in.	(mm)	lb.	(kg)	
15	(60)	18	(445)	22	(559)	11	(5.0)	791994
26	(100)	20	(500)	30	(760)	17	(7.7)	1001490
70	(265)	26	(661)	42.5	(11079.5)	37	(17)	1023175
132	(500)	32	(820)	47	(1190)	54	(24.5)	791997
220	(830)	42	(1067)	41	(1041)	55	(25.0)	7809688
300	(1135)	43	(1092)	59	(1499)	70	(31.7)	7809687

Note: pump mounting kit needed for all tanks (part no. 7500124)

Accessories for Tanks:

Lock and key for screw-on cap

200683

PVC tank drain fitting with plug

1/2" FNPT as an additional connection for chemical tanks. To be used as an open drain with plug or for addition of optional 1/2" ball valve fitting. Fits 1 3/8" opening.

Part No.

PVC with Viton® seal 7745801

PVC with EPDM seal 7740771

3/4" FNPT as an additional connection for chemical tanks. To be used as an open drain with plug or for addition of optional 3/4" ball valve fitting. Fits 1-3/8" opening.

PVC with Viton® seal 7745802

PVC with EPDM seal 7741477

PVC ball valve

1/2" PVC ball valve with 1/2" FNPT connections for all chemical tanks with 1/2" PVC tank drain fittings.

PVC with Viton® seal 7000309

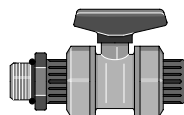
PVC with EPDM seal 7000311

3/4" PVC ball valve with 3/4" FNPT connections for all chemical tanks with 3/4" PVC tank drain fittings.

PVC with Viton® seal 7741668

PVC with EPDM seal 7741485

1077/4



2424/4

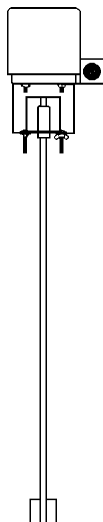
Pump & Systems Accessories

Mixers

Electric mixers

Note: with any tank-mounted mixer, the inertia of fluid rotating in a polyethylene tank may cause the tank to move when the fluid level is low. Provision should be made to anchor the tank or to automatically shut the mixer off when the fluid level is low.

Fig. 1



High speed mixer for water-like fluids in 15, 26 or 66 U.S. gallon tanks (Fig. 1):

Motor: 1/20 HP, 1550/1725 RPM, 115 VAC, 60 Hz, 1 ph., TEFC, with 8' Type SJ power cord, no on/off switch.

Shaft: 316 SS shaft/impeller (epoxy coated)

Mount: Four hole mounting flange with bolt holes, set at 5° angle for mounting directly on tank top.

Accessories: 1" diameter PVC metering pump suction pipe with bulkhead fitting for mounting to tank top.

Shipping weight: 9 lbs. (4 kg)

For 26 gallon tank (19" shaft)

For 66 gallon tank (34" shaft)

Shaft only (19" replacement)

Shaft only (34" replacement)

Part No.

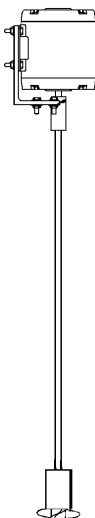
7818588

7818589

7818590

7818591

Fig. 2



High speed mixer for water-like fluids in 132 to 300 gallon tanks (Fig. 2):

Motor: 1/4 HP, 1725 RPM, 115/230 VAC, 60 Hz, TEFC. Power cord not included.

Shaft: 316 SS shaft/propeller. Shaft length: 36" (may be cut down for smaller tanks)

Mount: Bracket with bolt holes, for mounting directly on tank top.

Shipping weight: 27 lbs. (12 kg)

Shaft only (36" replacement)

7818592

7744506

Slow speed mixer for water-like fluids in 15, 26 or 66 gallon tanks:

Motor: 1/3 HP, 60 RPM, 115 VAC, 50/60 Hz, 1 ph., TEFC. Power cord not included.

Shaft: 316 SS shaft w/ 1 set of impellers. Shaft length is 44" (may be cut).

Mount: Bracket w/ 4 bolt holes for mounting directly on tank top.

Shipping weight: 32 lbs.

7818594

Note: Motor not thermally protected.

Mixer mounting kit for 26, 66, and 132 gallon tanks:

Polyethylene flange adapter for mounting mixers to metric flange. Includes all necessary hardware.

7744319

*(Other mixers available upon request)

Pump & Systems Accessories

Two Stage Float Switches (Solenoid metering pumps)

Two-stage Float Switch

(includes ceramic weight - do not use ceramic weight for fluoride service)

To monitor the fluid level in the chemical tank. Two-stage function, first stage is early warning annunciation, second stage will shut down pump after an additional drop in the fluid level of approximately 1.2" (30 mm).

With 3-pole round connector, suitable for direct connection to metering pump or with 3 leads
Switch mode when liquid level is low: 2 x N/C

Suitable for Beta b, gamma/ X, and gamma/ XL metering pumps

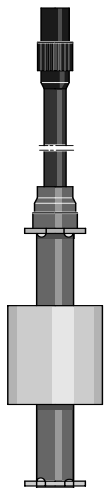
Technical data:

Max. Switching voltage: 24 V DC

Switching current: 0.5 A

Switching power: 5 W/5 VA

Temperature range: 14 °F - 149 °F (-10 °C - 65 °C), degree of protection IP 67



2380/4

Material	Connection cable	Lead length	Part Number
PP/PP	Round plug	6 Ft (2 m)	7142093
	Round plug	16 Ft (5 m)	7142095
PVC/PP	Round plug	6 Ft (2 m)	7142043
	Round plug	16 Ft (5 m)	7142038
PVDF/PVDF	Round plug	6 Ft (2 m)	7792639
	Round plug	16 Ft (5 m)	7792640

Float switch weights

1.53" dia. x 1.26" with oval opening .51" x 1.06"
 (39 mm x 32 mm) (13 mm x 27 mm)

Part Number
404004



1086/4

With two-stage float switches with round connector, the weight is slid into position from below after the float has been removed.

Note: Not for use in fluoride application (e.g. hydrofluosilicic acid).

Pump & Systems Accessories

Single Stage Float Switches (Solenoid metering pumps)

Level switch, single-stage with flat plug

(includes ceramic weight – do not use ceramic weight for fluoride service)

Single-stage level switch with flat plug for level monitoring in a storage tank.
Suitable for Concept b metering pumps

Technical data:

Max. Switching voltage: 100 V

Switching current: 0.5 A

Switching capacity: 5W/5A

Temperature range: 14 °F - 149 °F (-10 °C - 65 °C), degree of protection IP 67

Switching mode: at liquid level low 1 x N/O

Material	PVDF/PE	PVDF/PVDF
Level switch	PVDF	PVDF
Float	PE foamed	PVDF
Cable	PE	PE



2820/4

Material	Connection cable	Lead length	Part Number
PVDF/PE	Flat plug	6 Ft (2 m)	1031588
PVDF/PE	Flat plug	16 Ft (5 m)	1031590
PVDF/PVDF	Flat plug	6 Ft (2 m)	1034695
PVDF/PVDF	Flat plug	16 Ft (5 m)	1034696

Float switch weights

1.53" dia. x 1.26" with oval opening .51" x 1.06"
(39 mm x 32 mm) (13 mm x 27 mm)

Part Number
404003



Note: Not for use in fluoride applications (e.g. hydrofluosilicic acid), use PVC weight.

PVC weight

For bottom of foot valve in fluoride applications.

7404007

1086/4

Pump & Systems Accessories

Float Switches (Motor driven metering pumps)



2380/4

Two-stage Float switch

(includes ceramic weight - do not use ceramic weight for fluoride service)

To monitor the fluid level in the chemical tank. Two-stage function, first stage is early warning annunciation, second stage will shut down pump after an additional drop in the fluid level of approximately 1.2" (30 mm).

With 3-pole round connector, suitable for direct connection to metering pump

Suitable for Sigma/ X 1, 2 & 3 metering pumps

Technical data:

Max. Switching voltage: 100 V

Switching current: 0.5 A

Switching capacity: 5 W/5 VA

Temperature range: 14 °F - 149 °F (-10 °C - 65 °C), degree of protection IP 67

Material	Connection cable	Lead length	Part Number
PP/PP	Round plug	6 ft (2m)	7142093
	Round plug	16 ft (5 m)	7142095
PVC/PP	Round plug	6 ft (2m)	7142043
	Round plug	16 ft (5 m)	7142038
PVDF/PVDF	Round plug	6 ft (2m)	7142006
	Round plug	16 ft (5 m)	7142007

Single-stage Float switch

(includes ceramic weight - do not use ceramic weight for fluoride service)

Single-stage level switch with flat plug for level monitoring in a storage tank.

Suitable for Sigma/ 1, 2 & 3 basic metering pumps

Technical Data:

Max. Switching voltage: 100 V

Switching current: 0.5 A

Switching capacity: 5W/5A

Temperature range: 14 °F - 149 °F (-10 °C - 65 °C), degree of protection IP 67

Material	Connection cable	Lead length	Part Number
PP/PP	Flat plug	6 ft (2 m)	1031588
	Flat plug	16 ft (5 m)	1031590
PVC/PP	Flat plug	6 ft (2 m)	1031588
	Flat plug	16 ft (5 m)	1031590
PVDF/PVDF	Flat plug	6 ft (2 m)	1034695
	Flat plug	16 ft (5 m)	1034696

Float switch weights

PVC weight

For fluoride, (hydrofluosilicic acid) or when plastic is required to replace standard ceramicweight.

Part Number

7404007



2820/4

Pump & Systems Accessories

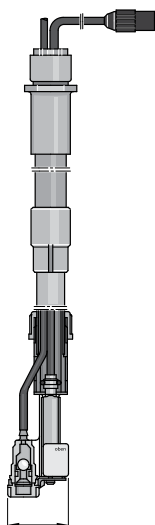
Suction Assemblies

Suction assemblies, two-stage: for beta b, gamma/ X and gamma/XL pumps

Including foot valve, rigid supporting pipe, suction line and float switch with 6 ft. (2 m) cable. For use in drums or tanks with mixers, which could tangle flexible suction tubing or float switch cables.

two-stage: with 3-pole *round connector*, for early warning and eventual pump shut-down for gamma.

PP version: EPDM o-rings, PE suction line



Adjustable PP suction assembly, with bulkhead fitting for 1" opening and 2-stage float switch

For ProMinent pumps with PP foot valve, PE suction hose, PP supporting pipe and union. PP two-stage float switch with 3-pole round connector

Adjustable length (foot valve to bulkhead)

26" to 41" (660 mm to 1040 mm) for 26 - 220 gallon (140 - 830 L) tanks

Requires 1.0" hole in top of tank for bulkhead fitting

PP version

Suction line

1/4" x 3/16"

1/2" x 3/8"

Part No.

790368

790370

2798/R

product
overview

solenoid-driven
metering pumps

motor-driven
metering pumps

pump spare parts &
accessories

DULCOMETER®
instrumentation

DULCOTEST®
sensors

polymer blending &
dry feed solutions

Pump & Systems Accessories

Suction Assemblies

Suction assemblies, single-stage: for Concept b

Including foot valve, rigid supporting pipe, suction line and float switch with 6 ft. (2 m) cable. For use in drums or tanks with mixers, which could tangle flexible suction tubing or float switch cables.

PP version: PP float switch, PE suction line

PVC version: PVC float switch, PE suction line

Adjustable PP suction assembly, with bulkhead fitting for 1" opening and single-stage float switch for tanks

With PP foot valve, PE suction hose, PP supporting pipe and union.

Size II 26" to 41" (660 mm to 1040 mm) for 26 - 220 gal. (140 - 830 L) tank

Requires 1.0" hole in top of tank for bulkhead fitting

PP version

Part No.

Suction line

1/4" x 3/16"

790356

1/2" x 3/8"

790358

PVC version

Part No.

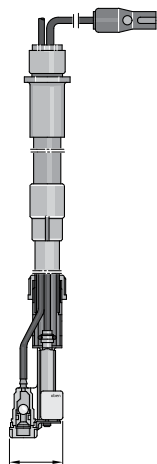
Suction line

1/4" x 3/16"

790350

1/2" x 3/8"

790352

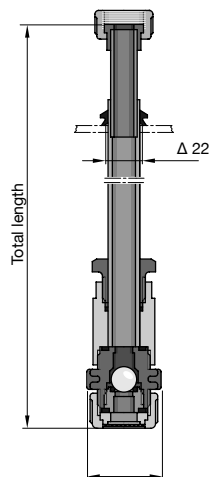


2798/F

Pump & Systems Accessories

Suction Assemblies

Suction assemblies: for Sigma X Basic and Makro pumps



Note: This fitting is a compression fitting, pipe can be cut to desired length.

2801/3

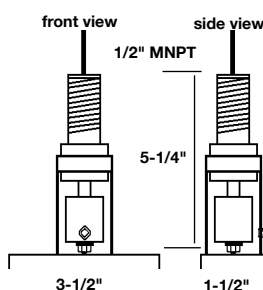
PP without float switch

Size of connection		Max. tank size gallons (liters)	Max. length inches (mm)	Part No.
PP-DN 10 - 1/2"	Sigma X	220 (830)	up to 52" (1320)	790389
PP-DN 15 - 3/4"	Sigma X	220 (830)	up to 52" (1320)	790394
PP-DN 25 - 1"	Sigma X/Makro	220 (830)	up to 52" (1320)	790396
PP-DN 32 - 1-1/2"	Sigma X	-	-	1005524

PVC without float switch

Size of connection		Max. tank size gallons (liters)	Max. length inches (mm)	
PVC-DN 10 - 1/2"	Sigma X	220 (830)	up to 52" (1320)	790387
PVC-DN 15 - 3/4"	Sigma X	220 (830)	up to 52" (1320)	790391
PVC-DN 20 - 3/4"	Makro	220 (830)	up to 52" (1320)	790392
PVC-DN 25 - 1"	Sigma X/Makro	220 (830)	up to 52" (1320)	790393
PVC-DN 32 - 1-1/2"	Sigma X	-	-	1005525

Diaphragm-failure Detector



Diaphragm-failure detector

To trip an alarm and/or switch the metering pump off in case of diaphragm failure. In a failure, fluid drains out a weep hole in the backplate, through a tube to the detector column. The float switch in the column trips with 10 mL of fluid. Comprising of a float switch PVC/PE, clear PVC column, tube connectors and connecting tube. Switch closure, max. contact rating 60 VAC, 300 mA, 5 W.

1/2" MNPT conduit connection. Shipped with loose ends on cable.

N/O
N/C

Part No.
7803640
7803650



Signal horn

115 V, 60 Hz, 95 dB, NEMA 4X (e.g. in conjunction with fault annunciating relay or relay combination)

7705004



Amber signal strobe light

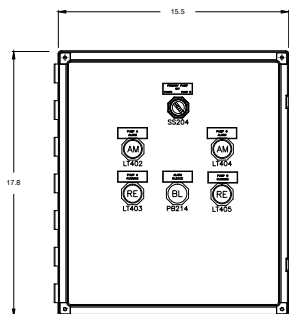
115 V, 60 Hz, NEMA 4X (e.g. for use in conjunction with fault annunciating relay or relay combination)

7914785

Pump & Systems Accessories

Universal Switchover Box

One, two, three or four pump terminal boxes are TYPE 4X polycarbonate boxes with terminals for Power and control / alarm cable connections for all pumps respectively. Terminal box can be connected to PFC control panels for Local or Remote operation of the pumps, customer has access to all functions of PFC Solenoid and control version pumps via the terminal box including Dry contact start and 4-20mA speed reference as well as the Alarm contact status and Analog feedback for each pump.



Next Generation

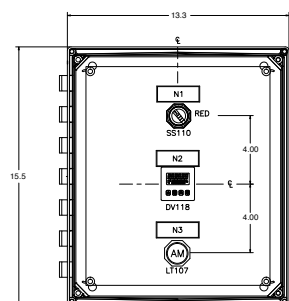
Type 4X Polycarbonate PLC operated switchover control with ability to Single switch over or 3 attempt switchover prior to stopping the process. , Alternating primary pump or non alternating primary selection, Accepts Remote Start and 4-20mA or Pacing signals, external interlock contacts N.O and N.C. , Provides Alarm, Running and 4-20mA feedback for each pump, leak detection status available when appropriate pump option selected. Output available for customer supplied audible alarm. Optional duplex receptacle available. Functions are selectable via jumper installed by customer

Part No.

CP2_120VAC Auto S/O:
(17.8"x15.5")

7746095

(replaces p/n 7951130)

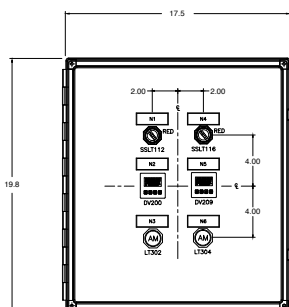


One Pump SCADA Panel

TYPE 4X Single Pump Local control panel for customer SCADA interface. Dry contact Start & 4-20mA speed reference from SCADA in Remote mode, status to SCADA include Alarm, Pump Running, & analog feedback of pump output. Enclosure dimensions (15.5"x13.3")

Part No.

7745681

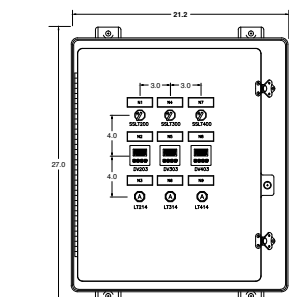


Two Pump SCADA Panel

TYPE 4X Dual Pump Local control panel for customer SCADA interface. Each pump receives dry contact Start & 4-20mA speed reference from SCADA in Remote mode, status to SCADA include Alarm, Pump Running, & analog feedback of pump output for each pump. Enclosure dimensions (19.8"x17.5")

Part No.

7745682



Three Pump SCADA Panel

TYPE 4X Three Pump Local control panel for customer SCADA interface. Each pump receives dry contact Start & 4-20mA speed reference from SCADA in Remote mode, status to SCADA include Alarm, Pump Running, & analog feedback of pump output for each pump. Enclosure dimensions (27"x21.2")

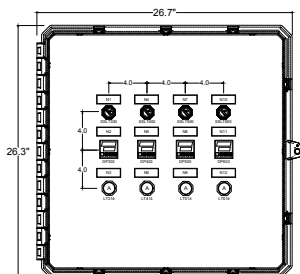
Part No.

7746598

Pump & Systems Accessories

Universal Switchover Box

Four Pump SCADA Panel



TYPE 4X Three Pump Local control panel for customer SCADA interface. Each pump receives dry contact Start & 4-20mA speed reference from SCADA in Remote mode, status to SCADA include Alarm, Pump Running, & analog feedback of pump output for each pump. Enclosure dimensions (26.7"x 26.3")

Part No.

7747229

The above SCADA interface panels are designed to operate with ProMinent Gamma X, Gamma XL, and Sigma X (Sigma/1, 2 & 3 Model) pumps. Configure these pump models with the optional input 4-20mA control and 4-20mA feedback with fault indication for correct operation. These options are indicated in the pump Identification Codes as follows.

Gamma X Pumps – GMXaXXXXXXXXXX00UD**CX3**XXEN

Gamma XL Pumps – GXLauSXXXXXXXXXX00UD**CX3**XXEN

Sigma X – Sigma 1 Pumps – S1CbHXXXXXXXXTXXX0UD**810**XXEN

Sigma X – Sigma 2 Pumps – S2CbHXXXXXXXXTXXX0UD**810**XXEN

Sigma X – Sigma 3 Pumps – S3CbHXXXXXXXXTXXX0UD**810**XXEN

For interfacing with older generation ProMinent pumps, please contact Inside Sales for assistance.

Terminal Box Kit, 1 Pump, Non-GFI Receptacle

(Consists of P/N: 7745824* + Additional Components for Receptacle)

Part No

7745878

Terminal Box Kit, 1 Pump, GFI Receptacle

(Consists of P/N: 7745824 + Additional Components for Receptacle)

(NOT TO BE UTILIZED WITH SIGMA CONTROL SERIES PUMPS)

7745879

Terminal Box Kit, 2 Pump, Non-GFI Receptacle

(Consists of P/N: 7745262* + Additional Components for Receptacle)

7745880

Terminal Box Kit, 2 Pump, GFI Receptacle

(Consists of P/N: 7745262* + Additional Components for Receptacle)

(NOT TO BE UTILIZED WITH SIGMA CONTROL SERIES PUMPS)

7745881

Terminal Box Kit, 3 Pump, Non-GFI Receptacle

(Consists of P/N: 7745263* + Additional Components for Receptacle)

7746097

Terminal Box Kit, 3 Pump, GFI Receptacle

(Consists of P/N: 7745263* + Additional Components for Receptacle)

(NOT TO BE UTILIZED WITH SIGMA CONTROL SERIES PUMPS)

7746098

Terminal Box Kit, 4 Pump, Non-GFI Receptacle

(Consists of P/N: 7746128* + Additional Components for Receptacle)

7746099

Terminal Box Kit, 4 Pump, GFI Receptacle

(Consists of P/N: 7746128* + Additional Components for Receptacle)

(NOT TO BE UTILIZED WITH SIGMA CONTROL SERIES PUMPS)

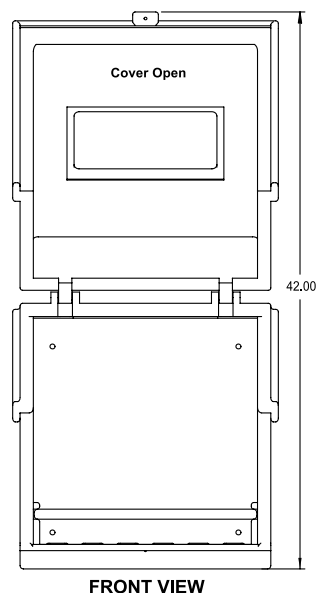
7746100

* Terminal Box Only

Pump & Systems Accessories

Pump Shelves and Stands

Pump Shelf with Containment



Safely contains up to 2 ProMinent® pumps and adds spill containment protection. Can be purchased with or without protective cover. Pump tubing can be run through holes on either side of shelf base. Cover includes viewing window. Cannot be used for hard piped applications.

Materials of Construction: Polyethylene

Shipping weight (w/o pumps): 15 lbs.

Height: 19"

Width: 19"

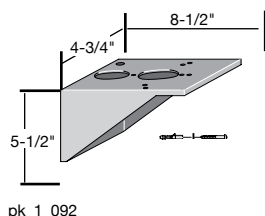
Depth: 16.5"

Hinge: Plated Steel

Drain: 1/4" FNPT

Description **Part Numbers**

Shelf w/cover 7500374

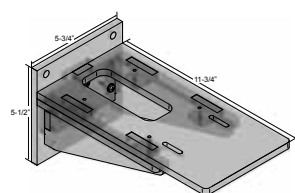


Wall mounting bracket for solenoid pumps

Part No.

Made of fiberglass-reinforced PPE, with wall-plugs and screws, accepting a concept, beta b, and gamma/ X. Pumps can be mounted either parallel or perpendicular to the wall.

810164

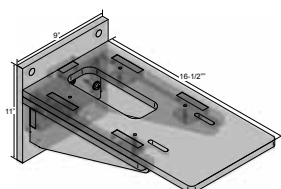


Wall mounting bracket for solenoid pump

Accepts concept, beta b, and gamma/ X

PP wall bracket mounts pumps so that diaphragm is parallel to the wall.

1088680



Wall mounting bracket for solenoid & motor pumps

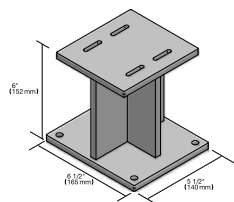
Accepts gamma/ XL & Sigma/ X 1 and 2 series pumps

PP wall bracket mounts pumps so that diaphragm is parallel to the wall.

1088681

Pump & Systems Accessories

Pump Stands

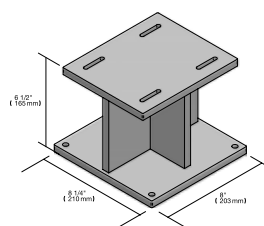


Floor mounting stand for solenoid pumps

Polypropylene floor mounting stand accepts pumps parallel to the floor.

6" PP floor mounting stand

1079672

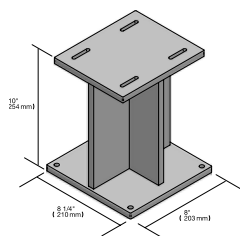


Floor mount stand for Motor pumps

Polypropylene floor mounting stand accepts pumps parallel to the floor.

6-1/2" PP floor mounting stand

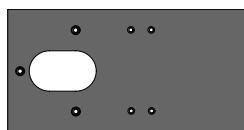
1028759



10" PP floor mounting stand

1088677

Adapter plate



pk_1_121

With fixtures, for vertical wall-mounting of beta 4/5 SEK. Used with PPE wall console.

PP adapter plate

1003030

product
overview

solenoid-driven
metering pumps

motor-driven
metering pumps

pump spare parts &
accessories

DULCOMETER®
instrumentation

DULCOTEST®
sensors

polymer blending &
dry feed solutions

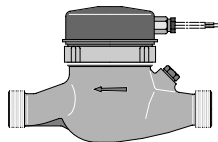
Pump & Systems Accessories

Water Meters

Pulse-type water meters for potable water

Contact water meter – US GPH Scale

max. operation temperature 104° F.

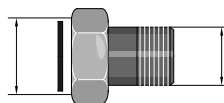


1137/4

Pipe Coupl. Size in.	Min. Flow Rate in			Max. Flow Rate in			Press. Loss Max. Flow Rate		Part No.
	GPM	GPH	(L/h)	GPM	GPH	(L/h)	psig	(bar)	
3/4"	0.5	30	(113)	20	1200	(4542)	14.5	(1)	7500076
1"	0.6	36	(136)	50	3000	(11356)	14.5	(1)	7500077
1-1/2"	1.0	60	(227)	100	6000	(22712)	14.5	(1)	7500078
2"	2.0	120	(454)	130	7800	(29526)	14.5	(1)	7500079

Note: Please specify GPC when ordering. (Price includes two screw fittings)

Screw fittings in brass with packing for water meters (price per unit)

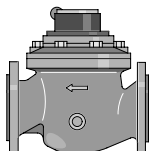


1139/4

3/4"	7359021
1-1/2"	7359023
2"	7359024

Contact water meter – US GPH, 3"...6" flanged

max. operation temperature 104°F.



1138/4

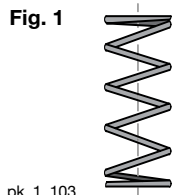
Min. Flow Rate in			Max. Thru-Put		Pipe Flange Size in.	Install. Length in.	Standard Gallon/ Pulse	Weight lb. (kg)	Part No.
GPM	GPH	(L/h)	GPM	GPH					
2.6	156	(590)	650	39000	3" ASA	9" (225 mm)	10	42 (19)	7304512
11	660	(2498)	1875	112500	6" ASA	12" (298 mm)	25	89 (40)	7304514

Pump & Systems Accessories

Valve Springs

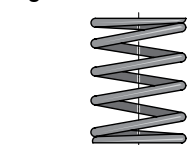
Valve springs

Fig. 1



pk_1_103

Fig. 2



pk_1_104

You may spring-load the valve balls in the pump suction and/or discharge valves to improve the valve function and increase the repeatability. Particularly recommended when pumping viscous fluids of more than 50 cPs (mPa).

Discharge valve springs may be used instead of an external backpressure valve to improve repeatability when discharging to an open tank. Suction valve springs in excess of 1 psig (0.05 bar) make priming difficult; and in excess of 7 psig (0.5 bar) makes pumping impossible, except where suction pressure exceeds spring pressure.

Not recommended for antisiphon protection – use a diaphragm-type backpressure valve for antisiphon protection. There is no labor charge for installing the valve springs into the pump valves or injection valves.

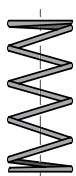
	Pressure Rating Material of psig (bar)		Construction	Part No.
Suction and Discharge Valves Model #'s: beta b & gamma/ X 1000, 1601, 1602, 1005, 1605 (Fig. 1)	1	(0.05)	316 SS	469406
	14	(1.0)	316 SS	469401
Suction and Discharge Valves, and Injection Valves Model #'s: beta b & gamma/ X 0708, 0413, 0220, 1008, 0713, 0420, 0232 All standard gamma/ XL liquid ends (Fig. 2)	1	(0.05)	Hastelloy C	469403
	7	(0.5)	Hastelloy C	469404
	7	(0.5)	PVDF-coated Hastelloy C	818590
	14	(1.0)	Hastelloy C	469413
	14	(1.0)	PVDF-coated Hastelloy C	818536
	29	(2.0)	Hastelloy C	469410
Suction and Discharge Valves Model #'s: beta b & gamma/ X 1002 PP4/PP5, 0423, 0230, plus Injection Valves: Models 0423, 0230	1	(0.05)	Hastelloy C	469114
	1	(0.05)	302 SS	7469401
	7	(0.5)	Hastelloy C	469115
	7	(0.5)	PVDF-coated Hastelloy C	818515
	14	(1.0)	Hastelloy C	469119
Suction and Discharge Valves Model #'s: Model #'s: beta b & gamma/ X 1006, 1310, 0813 PP4/PP5 only, plus Injection Valves: Models 1006, 1310 and 0813 PP4/PP5	1	(0.05)	Hastelloy C	469107
	7	(0.5)	Hastelloy C	469108
	7	(0.5)	PVDF-coated Hastelloy C	818516
	14	(1.0)	Hastelloy C	469116
Discharge Valves Model #'s (<u>w/ auto-degassing</u>): beta b & gamma/ X 1601, 1602, 1005, and 1605	21	(1.5)	Hastelloy C	791052

Pump & Systems Accessories

Valve Springs

Valve springs

Fig. 1

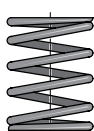


pk_1_103

You may spring-load the valve balls in the pump suction and/or discharge valves to improve the valve function and increase the repeatability. Particularly recommended when pumping viscous fluids of more than 50 cPs (mPa).

Discharge valve springs may be used instead of an external backpressure valve to improve repeatability when discharging to an open tank. Suction valve springs in excess of 1 psig (0.05 bar) make priming difficult; and in excess of 7 psig (0.5 bar) makes pumping impossible, except where suction pressure exceeds spring pressure.

Fig. 2



pk_1_104

Not recommended for antisiphon protection – use a diaphragm-type backpressure valve for antisiphon protection.

There is no labor charge for installing the valve springs into the pump valves or injection valves.

Pump Model	Spring Pressure Rating psig (bar)		Material of Construction	Part No.
DN 10 valves: Vario models 12017, 12026, 12042, 10025, 09039, 07063 Sigma X: Sigma/1, Hydro	1	(0.05)	Hastelloy C	469114
	7	(0.5)	Hastelloy C	469115
	7	(0.5)	PVDF-coated Hastelloy C	818515
	14	(1.0)	Hastelloy C	469119
	1	(0.05)	302 SS	7469401
DN 15 Valves: Vario models 06047, 05075, 04120 Sigma X: Sigma/1 Sigma X: Sigma/2 models 12050, 12090, 12130	1	(0.05)	Hastelloy C	469107
	7	(0.5)	Hastelloy C	469108
	7	(0.5)	PVDF-coated Hastelloy C	818516
	14	(1.0)	Hastelloy C	469116
DN 20 Valves: Makro models with 3/4" connectors	1	(0.05)	Hastelloy C	469451
	7	(0.5)	Hastelloy C	469409
	7	(0.5)	PVDF-coated Hastelloy C	818517
	14	(1.0)	Hastelloy C	469135
	1	(0.05)	302 SS	7469402
DN 25 Valves: Makro models with 1" connectors Sigma X: Sigma/2 models 07120, 07220, 04350	1	(0.05)	Hastelloy C	469452
	7	(0.5)	Hastelloy C	469414
	7	(0.5)	PVDF-coated Hastelloy C	818518
	14	(1.0)	Hastelloy C	469136
DN 40 Valves: Makro models with 1-1/2" connectors	7	(0.5)	Hastelloy C	469104
	7	(0.5)	PVDF-coated Hastelloy C	818519
Makro HK pumps with 1/4" connectors	1	(0.05)	316 SS	469461
Makro HK pumps with 3/8" connectors	1	(0.05)	316 SS	469462

Pump & Systems Accessories

Motors

AC and DC Motors

AC motors

All AC motors are recognized by Underwriters Laboratories component approval program, and Canadian Standards Association.

All motors are 1725 RPM, C-faced, and 60 Hz. Manufacturer may vary.

					Part No.
1/3 HP	TEFC	56-C	115/208-230V	1 phase	7951046
1/3 HP	TEFC	56-C	208-230/460V	3 phase	7951048
1/2 HP	TEFC	56-C	115/208-230V	1 phase	7951021
1/2 HP	TEFC	56-C	208-230/460V	3 phase	7951023
3/4 HP	TEFC	56-C	115/208-230V	1 phase	7951060
3/4 HP	TEFC	56-C	208-230/460V	3 phase	7951061
1 HP	TEFC	56-C	208-230/460V	3 phase	7951024
1-1/2 HP	TEFC	56-C w/base	115/208-230V	1 phase	7951025
1-1/2 HP	TEFC	56-C w/base	208-230/460V	3 phase	7951026
3 HP	TEFC	***182TC	208-230/460V	3 phase	7951142

*** Must use adapter (see below)

AC explosion-proof motors

Corrosion resistant epoxy finish. Positively locked drive end bearing.
UL and CSA approved for Class I, Group D or Class II, Group F and G.
UL approved cast conduit box-standard.
Manufacturer may vary.

					Part No.
1/3 HP		56-C	115/208-230V	1 phase	7951014
1/3 HP		56-C	208-230/460V	3 phase	7951013
1/2 HP		56-C	115/208-230V	1 phase	7951006
1/2 HP		56-C	208-230/460V	3 phase	7951005
3/4 HP		56-C	115/208-230V	1 phase	7951004
3/4 HP		56-C	208-230/460V	3 phase	7951003
1-1/2 HP		56-C w/base	208-230/460V	3 phase	7951002
3 HP		*182TC	208-230/460V	3 phase	7951001

* Must use adapter (see below)

Adapter *** (Required when using motors with 184TC or 182TC face)

Mounting flange and motor shaft coupling (Makro pumps w/3 HP, AC motors)	7951144
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DC motors

Permanent magnet 1750 rpm.

					Part No.
1/3 HP	TENV	90 V	56-C	Sigma	7951078
1/2 HP	TENV	90 V	56-C	Meta	7951079
3/4 HP	TEFC	90 V	56-C	Sigma/3, Meta, Makro, Hydro	7951080
1-1/2 HP	TEFC	180 V	145-TC	Makro, Hydro	7951081
3 HP	TEFC	180 V	184-C	Makro	7951140

Pump & Systems Accessories

Variable Speed Drives

AC Inverter

Provides variable motor speed with three-phase AC motors by adjusting the frequency (Hz) output to the motor. Motor not included with inverter. See motor section for three-phase motors. Features NEMA 4X enclosure with keypad and display of percent load or output voltage. Selectable for local or remote operation via 4-20 mA signal. Minimum speed 3-30 Hz.

Specifications

For 1/4 to 1/2 HP motors with line voltage 208-240 VAC, 3 phase, 60 hz	7746667
3 phase vac output: 2.3 amps max.	
Weight: 5.07 lbs (2.3 kg)	
Dimensions: (H x W x D) 9.137 x 6.34 x 6.89" (232 x 161 x 175 mm)	
For up to 1 HP motors with line voltage 208-240 VAC, 3 phase, 60 hz	7746668
3 phase vac output: 4.3 amps max.	
Weight: 5.07 lbs (2.3 kg)	
Dimensions: (H x W x D) 13.3 x 11 x 6.25" (338 x 280 x 159 mm)	
For up to 2 HP motors with line voltage 208-240 VAC, 3 phase, 60 hz	7746669
3 phase vac output: 7.0 amps max.	
Weight: 5.07 lbs (2.3 kg)	
Dimensions: (H x W x D) 9.137 x 6.34 x 6.89" (232 x 161 x 175 mm)	
For up to 1 HP motors with line voltage 380-480 VAC, 3 phase, 60 hz	7746670
3 phase vac output: 2.2 amps max.	
Weight: 5.07 lbs (2.3 kg)	
Dimensions: (H x W x D) 9.137 x 6.34 x 6.89" (232 x 161 x 175 mm)	
For up to 2 HP motors with line voltage 380-480 VAC, 3 phase	7746671
3 phase vac output: 4.1 amps max.	
Weight: 5.07 lbs (2.3 kg)	
Dimensions: (H x W x D) 9.137 x 6.34 x 6.89" (232 x 161 x 175 mm)	

(For 3 HP and larger drives contact Customer Service)

Inverter Duty Rated Motors

1/3 HP	TEFC	230/460 VAC	56C	3 phase	7951146
1/2 HP	TEFC	230/460 VAC	56C	3 phase	7951145
3/4 HP	TEFC	230/460 VAC	56C	3 phase	7951147
1 HP	TENV	230/460 VAC	143TC	3 phase	7500429
1-1/2 HP	TENV	230/460 VAC	145TL	3 phase	7951149
3 HP	TENV	230/460 VAC	*184TC	3 phase	7951143

* Must use adapter (see below)

Adapter * (Required when using motors with 184TC or 182TC face)

Mounting flange and motor shaft coupling (Makro pumps w/3 HP, AC motors)	7951144
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Pump & Systems Accessories

Stroke-positioning Motors

With standard process signal input 4-20 mA, corresponding to 0-100% stroke length.

Power supply: 115 V or 230 V, 60 Hz, 1 phase.

Manual/automatic mode selector switch.

Spring-return switch for manual stroke-length adjustment.

Mechanical stroke-length indicator.

Positioning time about 1 second per 1% stroke length

Stroke-positioning control system 4-20 mA

	110 V
Sigma/ 1	7781491
Sigma/2	1018894
Sigma/3	1006504
Makro	1020798
ProMus	852752

product
overviewsolenoid-driven
metering pumpsmotor-driven
metering pumpspump spare parts &
accessoriesDULCOMETER®
instrumentationDULCOTEST®
sensorspolymer blending &
dry feed solutions

Pump & Systems Accessories

Valve Balls

Valve Balls	Material	Dimensions in. (mm)		Part No.
For use with 4.8 mm valve	PTFE	1/4"	(4.8)	7404205
	SS	1/4"	(4.8)	404233
	Ceramic	1/4"	(4.8)	7500289
For use with 9.5 mm valve only	PTFE	1/2"	(9.5)	7404206
	SS	1/2"	(9.5)	404240
For use with 9.2 mm (standard) valve	Ceramic	1/2"	(9.2)	7500290

Special valve balls

For metering pumps and accessories if standard materials are unsuitable.



11.1 mm dia. for DN 10 (Sigma X)

PTFE (1/2" MNPT connection)

Ceramic (1/2" MNPT connection)

SS (3/8" FNPT connection)

Part No.

7404207

7500291

7404241



16 mm dia. for DN 15 (Sigma X)

PTFE (3/4" MNPT connection)

Ceramic (3/4" MNPT connection)

SS (1/2" FNPT connection)

7404208

404275

404244

pk_1_102

20 mm dia. for valve dia. 3/4" DN 20 (Makro)

PTFE

Ceramic

SS

404256

7500292

404246

25 mm dia. for valve dia. 1" DN 25 (Sigma X, Makro)

PTFE

Ceramic

SS

7404257

404274

404247

38.1 mm dia. for valve dia. 1-1/2" DN 40 (Makro)

PTFE

Ceramic

SS

404261

404278

7404260

Pump & Systems Accessories

De-aeration Valve Assembly

Introduction

Some chemicals "off-gas" (ie. decompose) when the pump is sitting idle; the gas accumulates and may cause the pump to lose prime. ProMinent's de-aeration valve assembly can help evacuate gases accumulated in the liquid end of the pump automatically even against system backpressure.

The de-aeration valve assembly operates by allowing any accumulated gases to exit, through the bleed valve. A small amount of liquid along with the expelled gases are channeled through the bleed valve and bypassed back to the supply tank. When gas is present in the de-aeration valve the resistance to flow through the bleed valve is relatively low. When the de-aeration valve becomes full of liquid the resistance to flow through the de-aeration valve increases dramatically, forcing the majority of the liquid to pass through the main discharge line.

Installation

A. General

Install the pump in accordance with the instructions contained in the pump operating manual. The de-aeration valve assembly must be installed directly on the outlet side of the discharge check valve.

B. Routing of Bypass Line

The bypass line should be routed back to the top of the chemical storage tank. Install the pump so the bypass line is not submerged in the chemical. It is not recommended to pipe into the calibration columns because they will overflow after a short period.

Warning: install the bypass line so any bypassed air/gas is not rerouted into the suction line.

C. Calibration

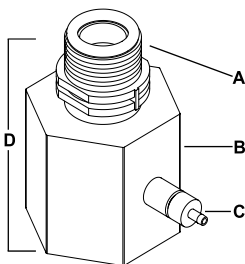
In calibrating the pump, use a graduated cylinder as the fluid source. You must collect any fluid returned through the bypass during the calibration and subtract it from the quantity drawn into the suction line.

Maintenance

- Ensure the pump connections are correct and tight
- Maintain a clean liquid end with no buildup of chemical crystalline material. Especially check the bleed valve and discharge ball checks.

Replacing the bleeder valve O-ring:

- Unscrew the bleeder valve and carefully remove the O-ring with a small screwdriver
- Fit a new O-ring into the valve port and screw in the bleeder valve and tighten to 2.2-2.6 ft. lb. torque



Size	Valve MNPT/ PVT (A)	Deaeration Valve/CPVC (B)	Air Relief Valve (C)	Deaeration Valve Complete (D)
DN 10	1002267	7740147	914596	7744259
DN 15	792517	7744695	914596	7744260
DN 20	792518	7744248	914596	7744249
DN 25	740615	7744986	914596	7744987
DN 32	1020031	7745133	914596	7745134

