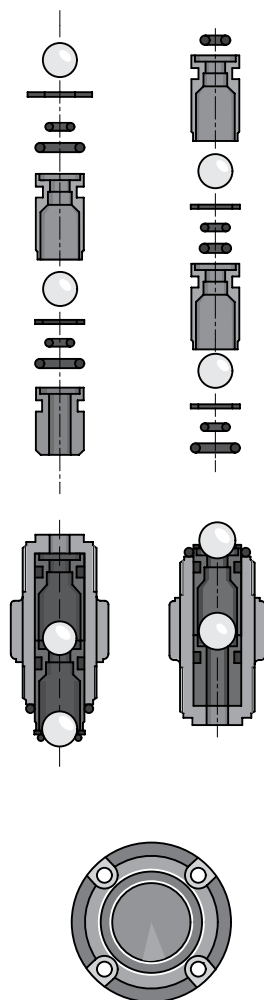


Solenoid Pump Spare Parts

beta, Concept^{PLUS} & gamma/ L



pk_1_008

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

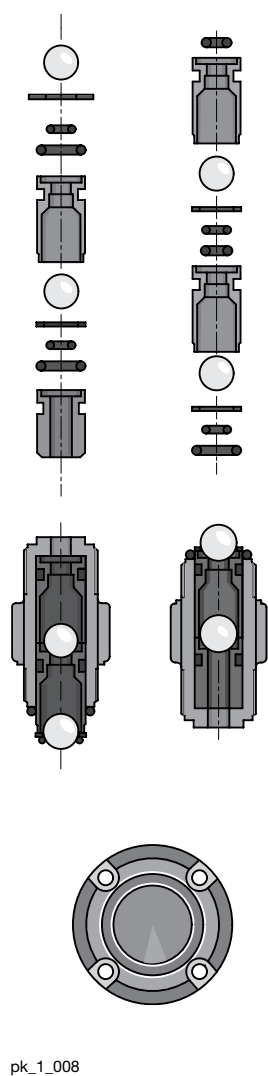
SS Liquid Ends

- 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 & gamma/ L

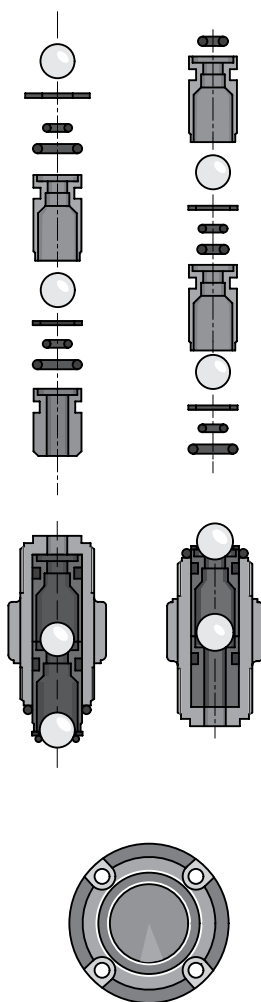


pk_1_008

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 & gamma/ L



pk_1_008

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	1001063.5	1000248
	PPB	1002396	1001765	1001436	1001070	1001062.7	1000248
	NPE	1002251	1001663	1001435	1001069	1001061.9	1000248
	NPB	1002245	1001669	1001434	1001068	1001060.1	1000248
0713	PPE	1002401	1001760	1001437	1001071	1001063.5	1000249
	PPB	1002400	1001766	1001436	1001070	1001062.7	1000249
	NPE	1002252	1001664	1001435	1001069	1001061.9	1000249
	NPB	1002246	1001670	1001434	1001068	1001060.1	1000249
0420	PPE	1002403	1001761	1001437	1001071	1001063.5	1000250
	PPB	1002402	1001767	1001436	1001070	1001062.7	1000250
	NPE	1002253	1001665	1001435	1001069	1001061.9	1000250
	NPB	1002247	1001671	1001434	1001068	1001060.1	1000250

Solenoid Pump Spare Parts

D_4a

Spare parts kits for ProMinent D_4a series metering pumps.

PP, NP

Liquid Ends

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

TT Liquid Ends

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

SS Liquid Ends

- 1 Diaphragm
- 4 Valve Balls
- 1 Discharge Valve Inserts
- 2 Suction Valve Inserts
- 1 Set of O-rings

Liquid End Version	Material Code	Liquid End	Spare Parts Kit	Spare Valves Only (connector sets not included)		
				Suction	Discharge	Diaphragm
1601	PP1	740413	740361	792644	740350	811453
	NP3	740410	740358	792026	740348	811453
	NS2	792239	792122	792119	792120	811453
	NS3	791849	792033	792026	792025	811453
	TT1	911338	912678	809407	809406	811453
	SS2	911344	912679	809424	809423	811453
1201	PP1	740417	740380	792644	740350	811454
	NP3	740414	740362	792026	740348	811454
	NS2	792241	792123	792119	792120	811454
	NS3	791850	792034	792026	792025	811454
	TT1	911365	912682	809407	809406	811454
	SS2	911371	912683	809424	809423	811454
0803	PP1	740421	740384	792644	740350	811455
	NP3	740418	740381	792026	740348	811455
	NS2	792243	792124	792119	792120	811455
	NS3	791851	792035	792026	792025	811455
	TT1	911392	912686	809407	809406	811455
	SS2	911398	912687	809424	809423	811455
1002	PP1	740425	740388	792644	740350	811456
	NP3	740422	740385	792026	740348	811456
	NS2	792245	792125	792119	792120	811456
	NS3	791852	792036	792026	792025	811456
	TT1	911420	912690	809445	809444	811456
	SS2	911426	912691	809497	809496	811456
0308	PP1	912227	912693	809439	809438	811457
	NP1	912226	912692	809413	809412	811457
	TT1	911448	912694	809445	809444	811457
	SS2	911454	912695	809497	809496	811457
0215	PP1	912232	912697	809439	809438	811458
	NP1	912231	912696	809413	809412	811458
	TT1	911476	912698	809445	809444	811458
	SS2	911482	912699	809497	809496	811458

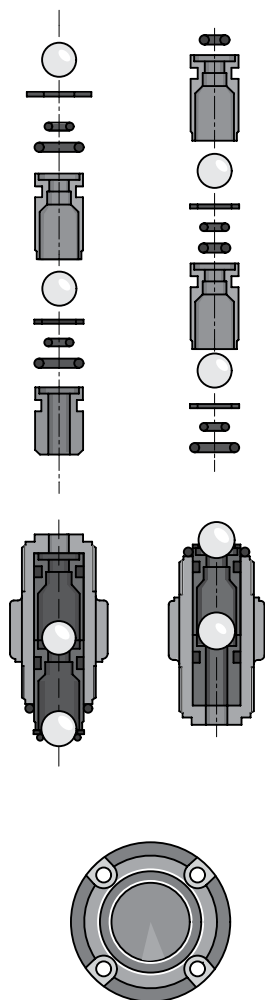
pk_1_008

Solenoid Pump Spare Parts

EXtronic

ProMinent®

EXtronic Spare Parts Kits



pk_1_008

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
1201	SS2	912679	811453
	PP1	740380	811454
	NP3	740362	811454
	NS3/PS3	792034	811454
0803	TT	912682	811454
	SS2	912683	811454
	PP1	740384	811455
	NP3	740381	811455
1002/2502	NS3/PS3	792035	811455
	TT	912686	811455
	SS2	912687	811455
	HV/PP4 (Type 1002)	910174	811456
0308/1006/2505	PP1	740388	811456
	NP3	740385	811456
	NS3/PS3	792036	811456
	TT	912690	811456
0613/1310	SS2	912691	811456
	HV/PP4 (Type 1006)	910940	811457
	PP1	740497	811457
	NP1	740498	811457
0417/0814	TT	912694	811457
	SS2	912695	811457
	HV/PP4 (Type 1310)	910942	811458
	PP1	740504	811458
0430/0230-DN 10	NP1	740505	811458
	TT1	912698	811458
	SS2	912699	811458
	HV/PP4 (Type 0814)	910944	811459
0260	PP1	740501	811459
	NP1	740502	811459
	TT	910978	811459
	SS2	910980	811459
0430/0230-DN 10	HV/PP4 (Type 0814)	910944	811459
	PP1	740507	811460
	NP1	740508	811460
	TT	910994	811460
0260	SS1	910996	811460
			811461

analytical
sensors

instrumentation

pump engineering
specifications

pump spare parts &
accessories

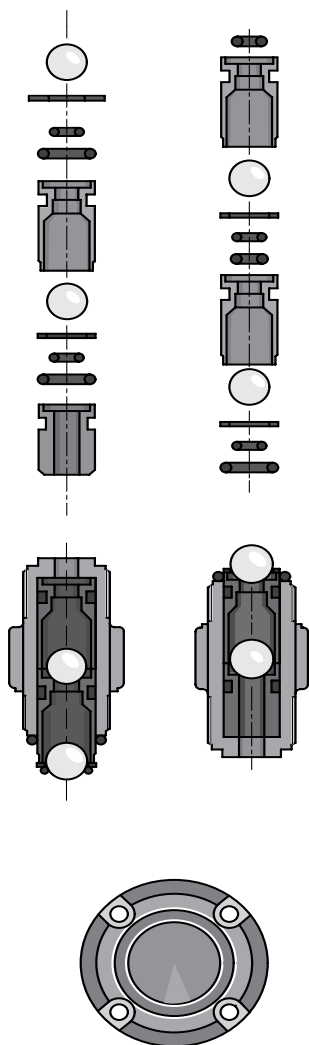
motor-driven
solenoid pumps

meter-driven
solenoid pumps

peristaltic
pumps

Solenoid Pump Spare Parts

delta®



pk_1_008

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

Stainless steel version without suction and discharge valve sets

Spare parts kit for delta®

Liquid End Version	Material Code	Part No.
1612	PVT	1027081
	SST	1027086
1020	PVT	1027082
	SST	1027087
0730	PVT	1027083
	SST	1027088
0450	PVT	1027084
	SST	1027089
0280	PVT	1027085
	SST	1027090

Replacement diaphragms for delta® series

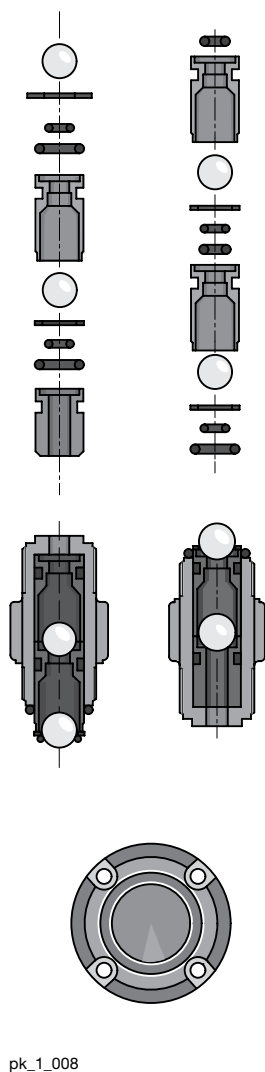
Liquid End Version	Material Code	Part No.
1612	all materials	1000248
1020	all materials	1000249
0730	all materials	1000250
0450	all materials	1000251
0280	all materials	1025075

Auto-degassing Retrofit Kit for delta® series

Version	Part No.
115V	1030928

Motor Pump Spare Parts

alpha



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

PP, PE & NP

Liquid Ends

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

alpha/b

Liquid End Version	Material Code	Liquid End	Spare Parts Kit	Spare Valves Only (connector sets not included)		Diaphragm
				Suction	Discharge	
1001,	PP1	791521	740388	792644	740350	811456
1002,	PP3	791523	740387	792646	740351	811456
1003	NP3	1001629	740385	792026	740348	811456
0804,	PP1	791522	740015	792644	740350	794175
0808,	PP2	791524	740017	792646	740351	794175
0612,	NP6	791526	740013	792026	740348	794175
0419						

alpha/a (old style)

Liquid End Version	Material Code	Liquid End	Spare Parts Kit	Spare Valves Only (connector sets not included)		Diaphragm
				Suction	Discharge	
1001	PE1	7912322	912689	809439	809438	811456
	PE2	7912336	910769	809449	809448	811456
	NP3	7912321	912688	809413	809412	811456
1002, 1003	PP1	7912327	912689	809439	809438	811456
	PP2	7912337	910769	809449	809448	811456
	NP3	7912321	912688	809413	809412	811456
0804,	PP1	7912338	7912693	809439	809438	791475
0808,	PP2	7912339	7910771	809449	809448	791475
0612, 0419	NP6	7912340	7912692	809413	809412	791475

Motor Pump Spare Parts

Vario C

Spare parts kit for PVT version include:

- 1 pump diaphragm
- 1 suction valve set
- 1 discharge valve set
- 2 valve balls
- 1 set of seals (packing rings, ball seat housings)

Spare parts kit for SST version include:

- 1 pump diaphragm
- 2 valve balls
- 1 set of seals (packing rings, flat seals, ball seat)

Vario spare parts kit

(applicable for Identity Code:
Type VAMc 10008, 10016, 07026, 07042)

Liquid End Version	Material Code	Part No.
Liquid end FM 042 - DN 10	PVT	1003641
	SST	910751

(applicable for Identity Code:
Type VAMc 07012, 07024, 04039, 04063)

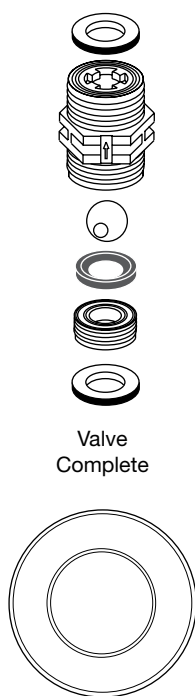
Liquid End Version	Material Code	Part No.
Liquid end FM 063 - DN 10	PVT	1003642
	SST	910756

Pump diaphragms

	Liquid End Version	Part No.
Vario with	FM 042 Type VAMc 10008, 10016, 07026, 07042	811458
	FM 063 Type VAMc 07012, 07024, 04039, 04063	811459

Motor Pump Spare Parts

Sigma 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)

Material Code	Liquid End Complete	Spare Parts Kit	Valve Complete	Diaphragm
12017, 12035, 10050 with Liquid end FM 50				
PVT	1010560	1010541	1002267	1010279
SST	1010561	1010555	809459	1010279
SST*		1010554		1010279
10022, 10044, 07065 with Liquid end FM 65				
PVT	1010562	1010542	1002267	1010282
SST	1010563	1010557	809459	1010282
SST*		1010556		1010282
07042, 04084, 04120 with Liquid end FM 120				
PVT	1010565	1010543	792517	1010285
SST	1010566	1010559	809404	1010285
SST*		1010558		1010285
12050 with Liquid end FM 130				
PVT	792755	740324	792517	792495
SST	792761	740328	809404	792495
SST*		740326		
12090, 12130 with Liquid end FM 130				
PVT	7792755	740324	792517	792495
SST	792761	740328	809404	792495
SST*		740326		
07120, 07220 with Liquid end FM 350				
PVT	792756	740325	740615	792496
SST	792762	740329	803708	792496
SST*		740327		
04350 with Liquid end FM 350				
PVT	7792756	740325	740615	792496
SST	792762	740329	803708	792496
SST*		740327		
120145, 120190, 120270, with Liquid end FM 330 - DN 25				
PVT	1005298	1005308	740615	1004604
SST	1005300	1005312	803708	1004604
SST*		1005310		1004604
070410, 070580, 040830, with Liquid end FM 1000 - DN 32				
PVT	1005297	1005309	1002806	1002835
SST	1005299	1005313	1002811	1002835
SST*		1005311		1002835

Liquid End Version	Material Code	Complete Liquid End	Spare Parts Kit	Valve Complete Suction (Spare valves only)	Valve Complete Discharge	Packing set
Sigma HK						
08 (For pump versions 32002, 23004, & 10006)	S	1000584	1001572	803792	803793	1000565
12.5 (For pump versions 14006, 10011, & 05016)	S	910420	910470	803792	803793	485401
25 (For pump versions 07012, 04522, & 02534)	S	910421	910471	803792	803793	485402
50 (For pump versions 04022, 02541, & 01264)	S	910422	910472	803794	803795	485403

Motor Pump Spare Parts

Meta

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

Standard kit for PP, TT and PVC material versions:

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

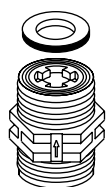
Standard kit for SS (316 stainless steel) version:

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

Standard kit for MTKa version:

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

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



MTMa
Valve
Complete

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

*SS complete with 2 spare valves

[†]For pump versions 10200, 10263, 10333

^{††}For pump versions 04400, 04527, 03662

Liquid End Version	Material Code	Complete Liquid End	Spare Parts Kit	Valve Complete Suction (Spare valves only)	Valve Complete Discharge	Packing set
Meta MTKaH/MTKaA						
12.5 (For pump versions 10812, 21012, 21606, 24006, 16208, 22508, 12190 & 21610)	SS	910420	910470	803792	803793	485401
25 (For pump versions 10213, 11313, 07617, 10617, 06122, 10222, 05126 & 09926)	SS	910421	910471	803792	803793	485402
50 (For pump versions 05425, 06025, 04033, 05633, 03241, 05441, 02749 & 05249)	SS	910422	910472	803794	803795	485403

Motor Pump Spare Parts

ProMus

Description	Part No.
Rebuild Kit for Manual Stroke Adjuster	852751
Rebuild Kit for Nema 7 Electric Stroke Adjuster	852753
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 Hastelloy C single ball	853662
Spare Parts Kit for Size 17 with Hastelloy C double ball for suct. & disch.	853663
Spare Parts Kit for Size 17 with Hastelloy C double ball for disch.	853665
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 Hastelloy C single ball	854801
Spare Parts Kit for Size 30 with Hastelloy C double ball for suct. & disch., 30/30	854803
Spare Parts Kit for Size 30 with Hastelloy C double ball for disch., 30/17	854805
Spare Parts Kit for Size 30 with Hastelloy C double ball for disch., 30/30	854807
Spare Parts Kit for Size 30 with Hastelloy C double ball for suct. & disch., 30/17	854809
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 Hastelloy C single ball	855507
Spare Parts Kit for Size 40 with PVT single ball	855908

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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

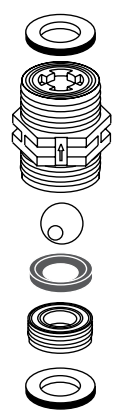
Standard kit for TT-PTFE material version:

- 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

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	PP	910401	910451	803701	811470
		P	910402	910454	803703	811470
		T	910403	910457	803705	811470
		SS	910404	910474 910460*	803707	811470
	FM-260 DN 20	PP	910407	910452	803701	811471
		P	910408	910455	803703	811471
		T	910409	910458	803705	811471
		SS	910410	910475 910461*	803708	811471
	FM-530 DN 25	PP	910413	910453	803702	811472
		P	910414	910456	803704	811472
		T	910415	910459	803706	811472
		SS	910416	910476 910462*	803708	811472
	FM-1500 & 2100 DN 40	PP	1001245	1001573	741174	811473
		P	1001244	1001574	741173	811473
		T	1001246	1001575	1000580	811473
		SS	1001247	1001577 1001576*	741175	811473
	FMH-70-20	PP		911903	741174	806938
		P		911901	741173	806938
		T		911905	1000580	806938
		SS		911907 911908*	741175	806938
	FMH-90-20	PP		911904	741174	806938
		P		911902	741173	806938
		T		911906	1000580	806938
		SS		911909 911910*	741175	806938

*SS with 2 valves, complete

Motor Pump Spare Parts

Makro TZMb

Identity Code: 120260, 120340, 120430, 120510, 120650

Liquid End Version	Material Code	Part No.
FM 670 - DN 25	PCT/PPT/TTT	1025164
	S	1022896
	S (without valve cpl.)	1022895

Identity Code: 070430, 070570, 070720, 070860, 071070

Liquid End Version	Material Code	Part No.
FM 1100 - DN 32	PCT/PPT/TTT	1025167
	S	1022917
	S (without valve cpl.)	1022916

Identity Code: 040840, 041100, 041400, 041670, 042100

Liquid End Version	Material Code	Part No.
FM 2100 - DN 40	PCT/PPT/TTT	1025169
	S	1022930
	S (without valve cpl.)	1022929

Pump & Systems Accessories

Accessory Kits

Accessory kits for alpha, concept^{PLUS}, beta and gamma/L pumps with tube fittings, including 5 ft. (1.5 m) of suction tubing, 10 ft. (3 m) of discharge tubing, foot valve and injection valve.

Tubing Size (in.) (select to fit pump)	Material Code	Suction Tubing	Discharge Tubing	Part No.
1/4 x 3/16	PCB/NPB/NP3	PE	PE	7809401
1/4 x 3/16	PPE/PP1	PE	PE	7809403
1/4 x 3/16	PPB	PE	PE	7809405
1/4 x 3/16	PCE/NPE	PE	PE	7809422
1/2 x 3/8	PCB/NPB/NP1/NP3/NP6	PVC	PE	7809402
1/2 x 3/8	PPE/PP1	PVC	PE	7809404
1/2 x 3/8	PPB/PP2/PP3	PVC	PE	7809406

PVC 1/2" x 3/8" suction tubing is pliable, allowing foot valve to sink. PE discharge tubing is rigid.

Pressure ratings are: PVC: 7 psig PE: 100 psig.

Tubing, foot valves and injection valves for TT and SS pumps are not available as kits and must be ordered as separate items.

Profibus adapters

5-pin, M12 x 1 to 9 pin., Sub D-plug, length approx. 11.8" (300 mm)



Y-adapter

2 x M12 x 1 male/female, 9 pin, Sub-D plug

Part No.

1005838

Adapter

1 x M12 x 1 male, 9 pin, Sub-D plug

1005839

Control Cables

Required for external control of ProMinent metering pumps including:

- beta
- gamma/ L
- delta
- Sigma/ 1 control
- Sigma/ 2 control
- Sigma/ 3 control

Description

Universal control cable, 5-wire, 6 ft. (2 m)
 Universal control cable, 5-wire, 15 ft. (5 m)
 Universal control cable, 5-wire, 30 ft. (10 m)

Part No.

1001300
 1001301
 1001302

(SEE DETAILED WIRING DIAGRAMS NEXT PAGE)

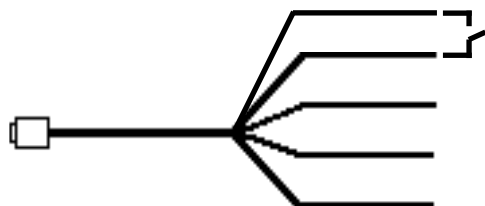
Pump & Systems Accessories

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

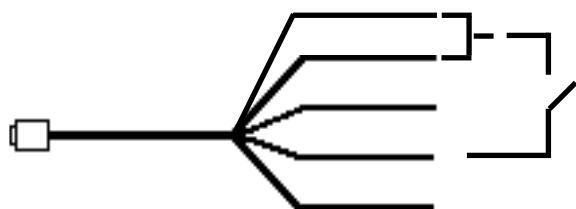
WHITE: Pulse (+)

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. GREY wire is not used and should be cut back.



BROWN: Remote On/Off (+)

BLACK: Common

GREY: Auxiliary Frequency

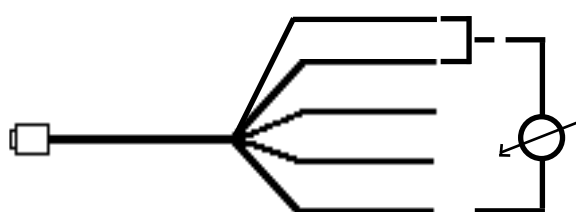
WHITE: Pulse (+)

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. GREY wire is not used and should be cut back.



BROWN: Remote On/Off (+)

BLACK: Common

GREY: Auxiliary Frequency

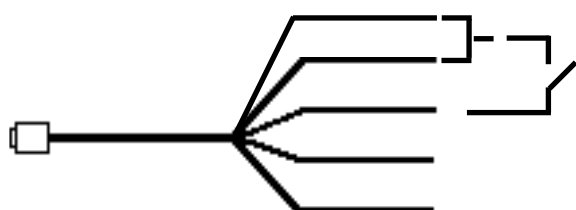
WHITE: Pulse (+)

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

GREY: Auxiliary Frequency

WHITE: Pulse (+)

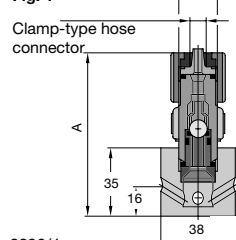
BLUE: Analog (+)

Pump & Systems Accessories

Foot Valves

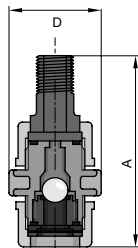
To be installed at the end of the suction line to improve priming and protect pump against coarse impurities. With ceramic* weight, strainer and ball check valve (must be mounted vertically for ball check function).

Fig. 1



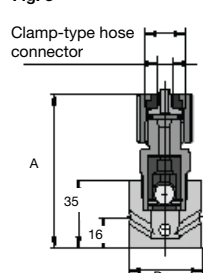
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Fig. 2



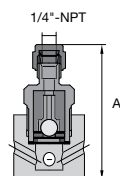
2165/4

Fig. 3



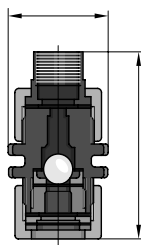
2397/4

Fig. 4



2398/4

Fig. 5



1521/4

Dimensions inches (mm)

Polypropylene

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

	Dim "A"	Dim "D"	Part No.
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 PVT, seals of Teflon

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

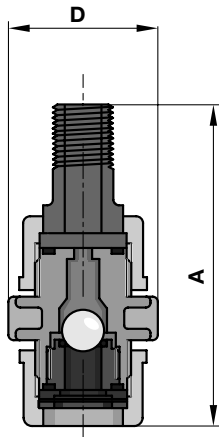
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Pump & Systems Accessories

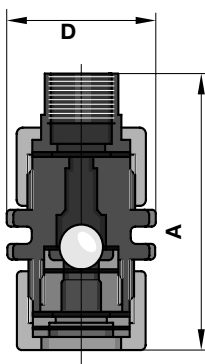
Foot Valves

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)	809465
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)	1004204

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)	1004193

PVDF/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
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 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
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" MNPT (DN 25) (Sigma 2, Sigma 3 and Makro) (PTFE/PTFE)	5-3/8 (137)	2-1/2 (63)	803726
1-1/2" MNPT (DN 32) (PVDF/PVDF)			1006434
1-1/2" MNPT (DN 40) (Sigma 3 and Makro) (PTFE/PTFE)	6-1/2 (165)	3-1/2 (89)	1004205

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
1-1/2" MNPT (DN 40) (Sigma 3 and Makro)	6-1/4 (159)	3-1/8 (79)	1004206
1/4" FNPT	2-3/4 (70)	1-1/2 (38)	803730
3/8" FNPT	2-3/4 (70)	1-1/2 (38)	803731

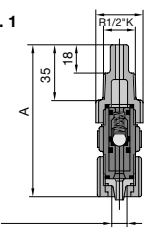
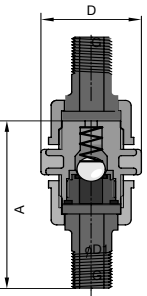
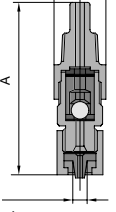
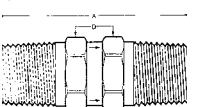
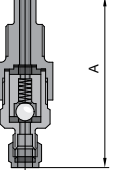
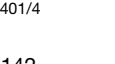
* See Figure 1, ** See Figure 2

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" MNPT x 1/4" MNPT, spring-loaded, adjustable by internal hex nut from 3-50 psig (0.2-3.5 bar) (Fig 4)	1-5/8 (42)	7914587
	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
Fig. 10 	Ball check valve , connection 3/8" FNPT inlet to 1/2" MNPT discharge, 7 psig (0.5 bar) spring (not illustrated) (SS1) (for 0423 & 0230 only)	3-1/2 (89)	809463
	PVT		
	Valve body of PVT, seals of Teflon		
	Connection 1/4" x 3/16" tubing x 1/2" MNPT injection end (Fig 1)	3-3/4 (95)	1024708
Fig. 11 	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

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

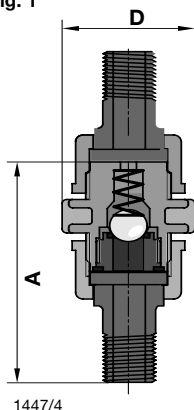


Fig. 2

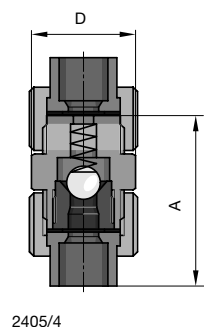
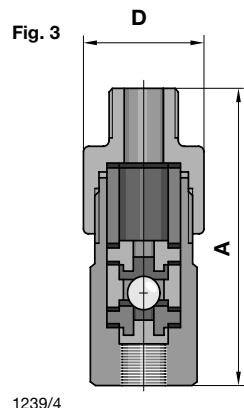


Fig. 3



Threaded Connection	Dimensions inches (mm)				Part No.
	Dim "A"		Dim "D"		
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

PVDF/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
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 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
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" MNPT (DN 25)	(PTFE/PTFE)	7-1/4 (184)	2-1/2 (63)	803715
1-1/2" MNPT (DN 32)	(PVDF/PVDF)			1002783
1-1/2" MNPT (DN 40)	(PTFE/PTFE)	8-1/4 (210)	3-1/2 (89)	804762

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)

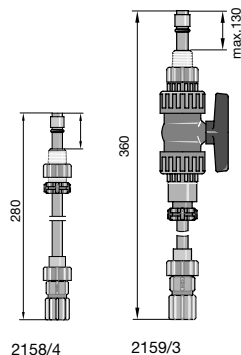
1/4" MNPT by 1/2" MNPT (DN 8)	4	(83)	1-5/8 (42)	803732
3/8" MNPT by 1/2" MNPT (DN 10)	4	(83)	1-5/8 (42)	803733

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



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

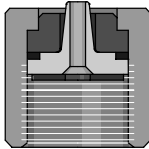
Connection for tubing 1/2" x 3/8"

809415

1856/4

Pump & Systems Accessories

Connector Sets

	Description	Part No.
	PP/VITON® for hose type 1/4" x 3/16"	790872
	PP/VITON® for hose type 1/2" x 3/8"	740133
	PP/VITON® for hose type 3/8" x 1/4"	7817168
	PP/EPDM for hose type 1/4" x 3/16"	790885
	PP/EPDM for hose type 1/2" x 3/8"	740132
	PP/EPDM for hose type 1/4" x 1/2"	817163
	PP/EPDM for hose type 3/8" x 1/4"	7817151
	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"	7817051
	PVC/EPDM for hose type 1/4" x 3/16"	790871
	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

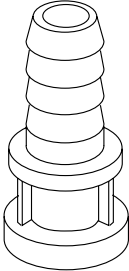
2181/4

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	037032
	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

1052/4

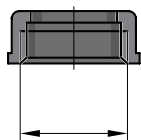
Hose Barbs

	Material (all 1/2" DN 10)	Part No.
	PP	800657
	PVC	800554
	PTFE	811572
	316 SS	810536
	Material (all 3/4" DN 15)	Part No.
	PP	800655
	PVC	811407
	PTFE	811424
	316 SS	810567

Pump & Systems Accessories

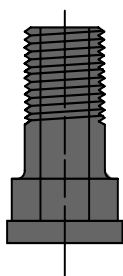
Union Nuts

Inserts



Union nut

1031/4



Threaded insert

1486/4

Pump	Union Nut Material	Threaded Insert Material	Union Nut Thread	Threaded Insert Thread	Union Nut Part No.	Threaded Insert Part No.
Vario	PP	PP	DN 10	1/2" MNPT	358613	7358630
High Viscosity	PP	PP	DN 10	1/2" MNPT	358613	7358402
Vario	PP	PP	DN 15	3/4" MNPT	358614	1017380
Meta/Makro	PP	PP	DN 20	3/4" MNPT	358615	1017381
Meta/Makro	PP	PP	DN 25	1" MNPT	358616	1017382
Meta/Makro	PP	PP	DN 40	1-1/2" MNPT	358618	7358611
Vario	PVC	PVC	DN 10	1/2" MNPT	356562	7358632
Vario	PVC	PVC	DN 15	3/4" MNPT	356563	1017380
Meta/Makro	PVC	PVC	DN 20	3/4" MNPT	356564	1017381
Meta/Makro	PVC	PVC	DN 25	1" MNPT	356565	1017382
Meta/Makro	PVC	PVC	DN 40	1-1/2" MNPT	356567	7358613
Vario	PVDF	PTFE	DN 10	1/2" MNPT	358813	7358634
Vario	PVDF	PTFE	DN 15	3/4" MNPT	358814	1017380
Meta/Makro	PVDF	PTFE	DN 20	3/4" MNPT	358815	1017381
Meta/Makro	PVDF	PTFE	DN 25	1" MNPT	358816	1017382
Meta/Makro	PVDF	PTFE	DN 40	1-1/2" MNPT	358818	7358615
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
Vario/Sigma	SS	SS	DN 10	3/8" FNPT	805270	7805285
Vario/Sigma	SS	SS	DN 15	1/2" FNPT	805271	7805286
Meta/Makro	SS	SS	DN 20	3/4" MNPT	805272	7358609
Sigma	SS	SS	DN 25	3/4" MNPT	805273	7358646
Meta/Makro/Sigma	SS	SS	DN 25	1" MNPT	805273	7358610
Sigma/3	SS	SS	DN 32	1-1/2" MNPT	805274	7358648
Meta/Makro	SS	SS	DN 40	1-1/2" MNPT	805275	7358617

Seals

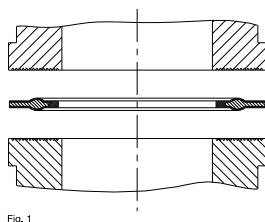


Fig. 1

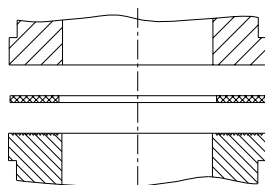


Fig. 2

Moulded composite seal

DN10
DN15
DN20
DN25
DN32
DN40
DN50

PTFE Part No.

1019364
1019365
1019366
1019367
1019353
1019368
1019369

Flat Seal

DN10
DN15
DN25
DN32
DN40
DN50

FPM Part No.

1019315
1019317
1019319
1019321
1019323
1019325

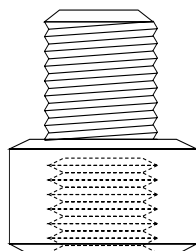
EPDM/P Part No.

1019314
1019316
1019318
1019320
1019322
1019324

Pump & Systems Accessories

Tubing Adapters

Adapters



M20 x 1.5 Female by 1/2" MNPT

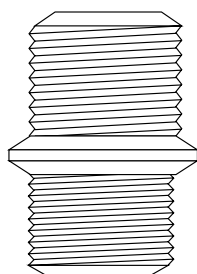
PVC
PVDF

7744060
7358652

M20 x 1.5 Female Socketweld

PVC
CPVC
PVDF

7740129
7740881
7745882



M20 x 1.5 Male by 1/2" MNPT

PVC
PVDF

7358228
7358660

M20 x 1.5 Male Socketweld

PVC
CPVC
PVDF

7740130
7745158
7745598



Right-angled PVC threaded connector

Connector for the beta and gamma/L 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



Right-angled PVC threaded connector

Fits on top of the beta and gamma/L 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

Pump & Systems Accessories

Backpressure Valves

Pressure Relief Valves

Backpressure, antisiphon and pressure relief valves



In-line pressure relief valve (3 port)



Backpressure valve (2 port)



Backpressure valve on tee for pressure relief

Technical data

Size:

1/4" and 1/2" NPT

Diaphragm

Materials:

PTFE-faced EPDM

Liquid Handling

Materials:

PP, PVC, PTFE, PVDF
316 Stainless Steel

Pressure Adjustment:

0-150 psig (0-10.3 bar)

Flow rates @ 45 psig (3.1 bar):

1/4" - 132 U.S. gph (500 L/h)

1/2" - 132 U.S. gph (500 L/h)

Flow rates @ 150 psig:

1/2" (PP, PVC) - 200 U.S. gph (757 L/h)

1/2" (PVDF, TT, SS) - 300 U.S. gph
(1135 L/h)

3/4" - 300 U.S. gph (1135 L/h)

1" - 500 U.S. gph (1893 L/h)

1-1/2" - 900 U.S. gph (3407 L/h)

2" - 1200 U.S. gph (4542 L/h)

Max. Temperature:

PP - 195°F (90°C)

PVC - 140°F (60°C)

PTFE - 250°F (121°C)

PVDF - 250°F (121°C)

316 Stainless - 250°F (121°C)

Max. Pressure Rating 170 psig @ 120°F

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.

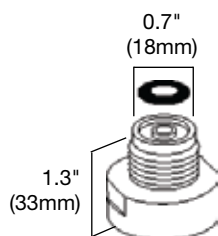
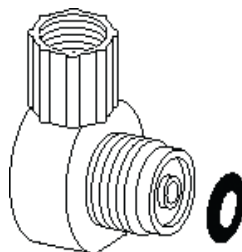
Pressure relief (3-port) valves are mounted in the discharge line, featuring a separate relief port which discharges back to the source tank or to the pump suction line to create a bypass.

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.



Adapter included with all back-pressure/pressure relief valves. Optional use in the event of diaphragm failure.

DIMENSIONS: 1/4" to 1/2" valves

D	A (in)	B (in)	C (in)
1/4"	4.90	2.6	1.2
*1/4"	*3.5	*2.375	*0.75
1/2"	4.9	2.6	1.2
*1/2"	*5.5	*3.5	*1.125
3/4"	5.4	3.5	1.1
1"	5.7	3.9	1.4
1-1/2"	8.5	4.6	2.2
2"	8.5	4.6	2.2v

*Note: Dimensions apply to SS and PTFE valves only.

DIMENSIONS (for replacement valves only): 1/4" to 1/2" valves - SEE PG. 8

D	A (in)	B (in)	C (in)
1/4"	3.9	2.375	0.75
*1/4"	*3.5	*2.375	*0.75
1/2"	4.6	2.375	1.125
*1/2"	*5.5	*3.5	*1.125
3/4"	5.5	3.5	1.125
1"	5.8	3.5	1.25
1-1/2"	9.0	4.5	2.1
2"	9.0	5.0	2.1

*Note: Dimensions apply to SS, PVDF and PTFE valves only.

Pump & Systems Accessories

Backpressure Valves

Pressure Relief Valves

1/4" FNPT valves

Material	Backpressure Valve (2-port)	Pressure Relief Valve (3-port)
PP	1009444	1009452
PVC	1009445	1009453
PVDF	1009446	1009454
316 SS	1009447	1009455

Tubing Adapters

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

	Part No.
PP/EPDM	7500060
PP/Viton®	7500058
PVC/EPDM	7500064
PVC/Viton®	7500062

1/2" FNPT valves

Material	Backpressure Valve (2-port)	Pressure Relief Valve (3-port)
PP	1006846	1006858
PVC	1006850	1006862
PVDF	1006854	1006866
316 SS	1008796	1008800

Tubing Adapters

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

	Part No.
PP/EPDM	7500061
PP/Viton®	7500059
PVC/EPDM	7500065
PVC/Viton®	7500063

3/4" FNPT valves

Material	Backpressure Valve (2-port)	Pressure Relief Valve (3-port)
PP	1006847	1006859
PVC	1006851	1006863
PVDF	1006855	1006867
316 SS	1008797	1008801

1" FNPT valves

PP	1006848	1006860
PVC	1006852	1006864
PVDF	1006856	1006868
316 SS	1008798	1008802

1-1/2" FNPT valves

PP	1006849	1006861
PVC	1006853	1006865
PVDF	1006857	1006869
316 SS	7302243	7302261

2" FNPT valves

PP	1009448	1009456
PVC	1009449	1009457
PVDF	1009450	1009458
316 SS	7302247	7302265

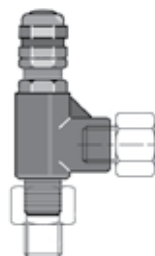
Spare diaphragms

1/4" - 1/2" valve PTFE/EPDM	1006813	1006813
3/4" - 1" valve PTFE/EPDM	1006814	1006814
1-1/2" - 2" valve PTFE/EPDM	1006815	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/ Meta/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®	Part No.	
Connection:	1/4" NPT male and female thread		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

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.

Some models are flow-through design, with two ports so they can be mounted directly on the pump suction or discharge line. Other models are single port design, to be teed off of the pump suction or discharge line. Flow-through models may also be used in a tee if one port is capped.

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.

Sizing Pulsation Dampeners

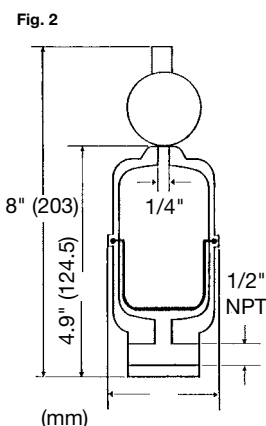
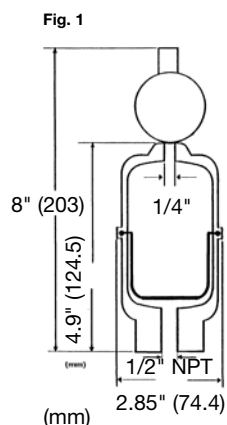
Multiply the pump's displacement per stroke (mL) times 26 to get minimum pulsation dampener volume (mL) to achieve 90% reduction in pulsation.

Safety Note: 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



131 mL (8 cu. in.) Models

SS housing: 3/8" FNPT, 1 port (not illustrated)				
PTFE bellows	3 (1.4)	CTS1020 T	III	7253205
PVDF housing: 1/2" FNPT, 1 port (Fig. 1)				
PTFE bellows	1 (0.9)	CTK1005 T 5	III	7744101

164 mL (10 cu. in.) Models

PVC housing: 1/2" FNPT, 1 port (Fig. 1)				
Nordel bladder (EPDM)	1 (0.9)	CTP1015 ND 5	III	7744096
Viton® bladder	1 (0.9)	CTP1015 V 5	III	7744097
HYPALON® bladder	1 (0.9)	CTP1015 H 5	III	7744098
Polypro housing: 1/2" FNPT, 1 port (Fig. 1)				
Nordel bladder (EPDM)	1 (0.9)	CTP1005 ND 5	III	7744102
PVDF housing: 1/2" FNPT, 1 port (Fig. 1)				
Nordel bladder (EPDM)	1 (0.9)	CTK1005 ND 5	III	7744100
Viton® bladder	1 (0.9)	CTK1005 V 5	III	7744099

131 mL (8 cu. in.) Models

PVDF housing: 1/2" FNPT, 2 port (Fig. 2)				
PTFE bellows	1 (0.9)	CTK1000 T	III	7253217

164 mL (10 cu. in.) Models

PVC housing: 1/2" FNPT, 2 port (Fig. 2)				
Viton® bladder	1 (0.9)	CTP1010 V	III	7253216
HYPALON® bladder	1 (0.9)	CTP1010 H	III	7740945
Polypro housing: 1/2" FNPT, 2 port (Fig. 2)				
Nordel bladder (EPDM)	1 (0.9)	CTP1000 ND	III	7253201
PVDF housing: 1/2" FNPT, 2 port (Fig. 2)				
Nordel bladder (EPDM)	1 (0.9)	CTK1000 ND	III	7253203
Viton® bladder	1 (0.9)	CTK1000 V	III	7253204

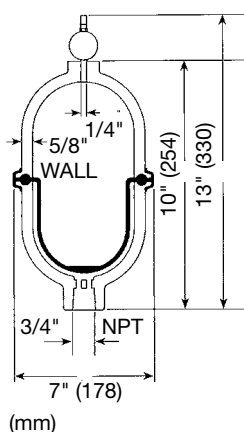
Viton® and HYPALON® are registered trademarks of DuPont Dow Elastomers

Pump & Systems Accessories

Pulsation Dampeners

Pulsation dampeners (cont.)

Fig. 3



262 mL (16 cu. in.) Models

PVC housing: 3/4" FNPT, 1 port (Fig. 3)				
PTFE bellows	7 (3.2)	CT1311 T	II	7744211
PVDF housing: 3/4" FNPT, 1 port (Fig. 3)				
PTFE bellows	7 (3.2)	CT1401 T	II	7253234
SS housing: 3/4" FNPT, 1 port (Fig. 3)				
PTFE bellows	11 (5.0)	CT3120 T	II	7253237

600 mL (36 cu. in.) Models (cont. from pg.15)

PVC housing: 3/4" FNPT, 1 port (Fig. 3)				
Nordel bladder	7 (3.2)	CT1311 ND	II	7253232
Viton® bladder	7 (3.2)	CT1311 V	II	7253233
HYPALON® bladder	7 (3.2)	CT1311 H	II	7740946
Polypro housing: 3/4" FNPT, 1 port (Fig. 3)				
Nordel bladder	6 (2.7)	CT1301 ND	II	7253230
Viton® bladder	6 (2.7)	CT1301 V	II	7253231
PVDF housing: 3/4" FNPT, 1 port (Fig. 3)				
Nordel bladder	7 (3.2)	CT1401 ND	II	7253236
Viton® bladder	7 (3.2)	CT1401 V	II	7253235
SS housing: 3/4" FNPT, 1 port (Fig. 3)				
Viton® bladder	11 (5.0)	CT3120 V	II	7253238

1147 mL (70 cu. in.) Models

PVC housing: 3/4" FNPT, 1 port (Fig. 3)				
PTFE bellows	10 (4.5)	CT311 T	II	7253229
SS housing: 3/4" FNPT, 1 port (Fig. 3)				
PTFE bellows	14 (6.4)	CT3020 T	II	7253206
PVDF housing: 3/4" FNPT, 1 port (Fig. 3)				
PTFE bellows	8 (3.6)	CT401 T	II	7253219

1393 mL (85 cu. in.) Models

PVC housing: 3/4" FNPT, 1 port (Fig. 3)				
Nordel bladder	6 (2.7)	CT311 ND	II	7253221
Viton® bladder	6 (2.7)	CT311 V	II	7253220
HYPALON® bladder	6 (2.7)	CT311 H	II	7740947
Polypro housing: 3/4" FNPT, 1 port (Fig. 3)				
Nordel bladder (EPDM)	6 (2.7)	CT301 ND	II	7253207
Viton® bladder	6 (2.7)	CT301 V	II	7253208
PVDF housing: 3/4" FNPT, 1 port (Fig. 3)				
Nordel bladder (EPDM)	7 (3.2)	CT401 ND	II	7253209
Viton® bladder	8 (3.6)	CT401 V	II	7253210

1998 mL (122 cu. in.) Models

PVC housing: 2" FNPT, 1 port				
PTFE bellows	16 (7.3)	CT911 T	I	7253228
PVDF housing: 2" FNPT, 1 port				
PTFE bellows	15 (6.8)	CT1201 T	I	7253225
SS housing: 2" FNPT, 1 port				
PTFE bellows	30 (13.6)	CT2520 T	I	7253226

2867 mL (175 cu. in.) Models

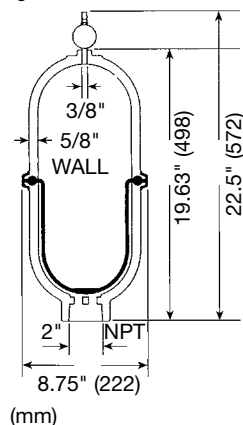
Polypro housing: 2" FNPT, 1 port				
Nordel bladder	13 (5.9)	CT901 ND	I	7253223
PVC housing: 2" FNPT, 1 port				
Viton® bladder	13 (5.9)	CT911 V	I	7253224
HYPALON® bladder	13 (5.9)	CT911 H	I	7740948

Pump & Systems Accessories

Pulsation Dampeners

Pulsation dampeners (cont.)

Fig. 4



5822 mL (355 cu. in.) Models

PVC housing: 2" FNPT, 1 port

PTFE bellows

Shipping
Weight

lbs (kg)

Model

Size

Part No.

18 (8.2)

CT111 T

I

7253227

PVDF housing: 2" FNPT, 1 port

PTFE bellows

21 (9.5)

CT201 T

I

7253215

SS housing: 2" FNPT, 1 port (Fig. 4)

PTFE bellows

40 (18.1)

CT2400 T

I

7253211

6063 mL (370 cu. in.) Models

PVC housing: 2" FNPT, 1 port (Fig. 4)

Nordel bladder

16 (7.3)

CT111 ND

I

7253222

Viton® bladder

16 (7.3)

CT111 V

I

7253218

HYPALON® bladder

16 (7.3)

CT111 H

I

7740949

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

Nordel bladder (EPDM)

15 (6.8)

CT101 ND

I

7253212

Viton® bladder

15 (6.8)

CT101 V

I

7253213

PVDF housing: 2" FNPT, 1 port (Fig. 4)

Nordel bladder (EPDM)

18 (8.2)

CT201 ND

I

7253214

Note: Other sizes and materials available upon request.

High pressure pulsation dampeners for ProMus pumps only.

66 mL (4 cu. in.) Models

Hastelloy C housing: 3/8" FNPT, 1 port (not illustrated)

Santoprene® bladder

H1180 W

III

7744378

Viton® bladder

H1180 V

III

7744381

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

Nordel bladder (EPDM)

H1120 ND

III

7744387

164 mL (10 cu. in.) Models

Hastelloy C housing: 3/8" FNPT, 1 port (not illustrated)

Santoprene® bladder

H1080 W

III

7744379

Viton® bladder

H1080 V

III

7744382

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

Nordel bladder (EPDM)

H1020 ND

III

7744388

197 mL (12 cu. in.) Models

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

PTFE bellows

TG12SST

II

7744377

600 mL (36 cu. in.) Models

Hastelloy C housing: 3/4" FNPT, 1 port (not illustrated)

Hypalon bladder

H3180 H

II

7744380

Viton® bladder

H3180 V

II

7744383

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

Nordel bladder (EPDM)

H3120 ND

II

7744389

Pump & Systems Accessories

Pulsation Dampeners

Spare bladders/bellows

	Model	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. $26 \times (\text{mL/stroke}) = \text{minimum required inlet stabilizer volume}$. **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
HYPALON® bladder	J3111H	II	7744305
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

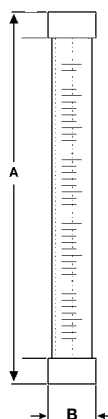
Materials shown are in contact with process fluid.
Other material and sizes are available. Please consult factory.

Pump & Systems Accessories

Calibration Columns

Calibration columns

Clear PVC calibration columns

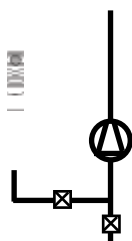


Cylinder size	Fitting size	Dimension (inches)		Threaded base, removable top	Threaded both ends
		A	B		
100 mL	1/2" NPT	10.75	1.39	7500137	7500127
250 mL	1/2" NPT	11.51	1.89	7500138	7500128
500 mL	1/2" NPT	12.75	2.39	7500139	7500129
1000 mL	1/2" NPT	16.75	2.77	7500130	7500135
2000 mL	1" FNPT	20.67	3.52	7500140	7500131
4000 mL	1" FNPT	22.66	4.52	7500141	7500132
10,000 mL	2" FNPT	23.16	6.91	7500134	7500133
20,000 mL	2" FNPT	42.69	6.91	7500142	7500136

Typical Application of Calibration Columns

Column w/removable top

Note: Top must be removed during calibration



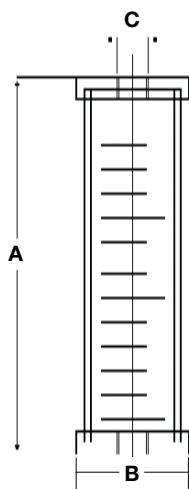
Column threaded both ends

Note: If plumbed as shown, a vent hole must be drilled into the top of the calibration column



Borosilicate Glass calibration columns with Viton® o-rings for Sulfuric Acid Applications

Glass cylinder with acrylic outer shield and 1/2" (316 SS) or 3/4" (PVDF, PVC) thick end flanges. All cylinders are bolted together using stainless steel rods with Viton O-rings for the glass seal and Buna N O-rings for the acrylic seal.



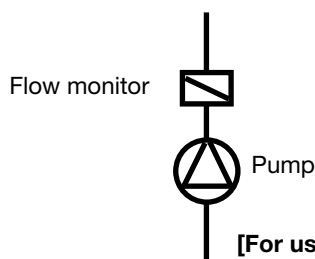
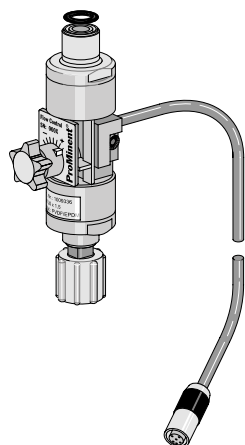
Cylinder size	Fitting size	Dimensions (inches)			Part No.
		A	B	C	
100 mL	1/2" CPVC	10.0	3.0	1/2	7500151
100 mL	1/2" PVDF	10.0	3.0	1/2	7500152
100 mL	1/2" SS	9.5	3.0	1/2	7500153
250 mL	1/2" CPVC	12.5	3.5	1/2	7500154
250 mL	1/2" PVDF	12.5	3.5	1/2	7500155
250 mL	1/2" SS	12.0	3.5	1/2	7500156
500 mL	1/2" CPVC	14.5	4.0	1/2	7500157
500 mL	1/2" PVDF	14.5	4.0	1/2	7500158
500 mL	1/2" SS	14.0	4.0	1/2	7500159
1000 mL	1/2" CPVC	16.75	4.75	1/2	7500160
1000 mL	1/2" PVDF	16.75	4.75	1/2	7500161
1000 mL	1/2" SS	16.25	4.75	1/2	7500162
2000 mL	1" CPVC	18.75	5.5	1	7500163
2000 mL	1" PVDF	18.75	5.5	1	7500164
2000 mL	1" SS	18.25	5.5	1	7500165
4000 mL	1" CPVC	22.5	6.5	1	7500166
4000 mL	1" PVDF	22.5	6.5	1	7500167
4000 mL	1" SS	22.0	6.5	1	7500168

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 is actuated if the flow falls below 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:

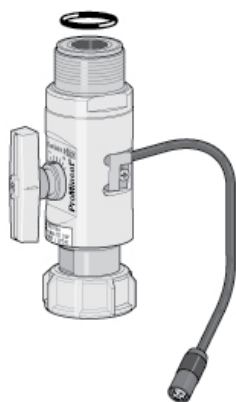
Flow meter: PVDF
 Float: PTFE-coated
 O-rings: Viton® B/EPDM

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

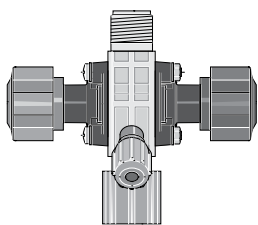
For Sigma HM with connection cable for assembly to liquid end.

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



3006/4

ProMinent's multifunction valve is operated by means of smooth-action rotary knobs which automatically return to their initial position when released. Made of PVDF, it can be used in feed systems for virtually all chemicals. The multifunction valve is mounted directly on the liquid end of the pump for backpressure, antisiphon, pressure relief, priming, and draining the discharge line. The inlet thread is female M20 x 1.5 and the discharge is male M20 x 1.5.

ProMinent's multifunction valve has the following functions:

- Backpressure valve, opening pressure approximately 22 psi (1.5 bar)
- Relief valve, opening pressure approximately 87, 145 or 232 psi (6, 10 or 16 bar)
- Admission aid in existing backpressure, no need to de-pressurize pipes
- Pressure relief, e.g. prior to servicing

Warning: Backpressure valves are not intended as completely sealed units!

Materials in contact with chemicals:

Valve body	PVDF
Diaphragm	PTFE-coated
O-rings	Viton® or EPDM
DN 10 adapter	PVC

Technical data:

Type	Relief opening pressure	Application range by size	Part No.
Size I (M20 x 1.5)	232 psi (16 bar)	alpha all types	792011
Size I	145 psi (10 bar)	beta & gamma/L type 1000, 1601,	791715
Size I	87 psi (6 bar)	1602, 1605, 1005, 1008, 0708, 0413, 0220	1005745
Size II (M20 x 1.5)	145 psi (10 bar)	beta & gamma/L type 1605, 1008,	792203
Size II	87 psi (6 bar)	0713, 0420, 0232	740427
Size III (DN 10)	145 psi (10 bar)		792215

Note: Multifunction valves mounted to stainless steel liquid ends require below adapters.

**Cannot adjust pressure; fixed factory setting.*

Connector Set for SS version pumps

Adapter with o-rings, for use with SS2 liquid ends: 1/4" MNPT x Male M20 x 1.5 adapter, PVDF	7358651
Adapter with o-rings, for use with SS2 liquid ends: 3/8" MNPT x Male M20 x 1.5 adapter, PVDF	7358659

* Viton® is a registered trademark of DuPont Dow Elastomers

Bleed Relief valve

ProMinent's auto-degassing bleed relief valve is ideal for sodium hypochlorite and other applications conducive to off gassing. Upon detection of an airlock, the external solenoid valve will be opened automatically by the delta pump. The pump will stroke at maximum capacity for a preset period of time into the tank. Once the airlock situation is resolved, the external solenoid valve will close and the delta pump will automatically return to its original stroke rate.

ProMinent's multifunction valve has the following functions:

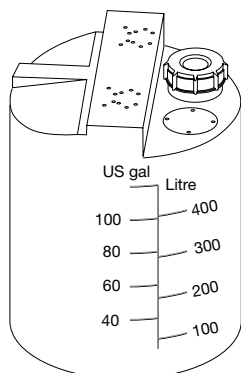
- Backpressure valve, opening pressure approximately 22 psi (1.5 bar)
- Relief valve, opening pressure approximately 87, 145 or 232 psi (6, 10 or 16 bar)
- Admission aid in existing backpressure, no need to de-pressurize pipes
- Pressure relief, e.g. prior to servicing

Warning: Backpressure valves are not intended as completely sealed units!

Pump & Systems Accessories

Tanks

Chemical tanks



15, 26, 66, 132 gallon capacity

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 gallon (litre)	O.D. in. (mm)	Height in. (mm)	Empty Weight lb. (kg)	Part No.
15 (60)	16 (410)	23 (590)	11 (5.0)	791994
26 (100)	20 (500)	30 (760)	17 (7.7)	1001490
66 (250)	24 (600)	43 (1100)	39 (17.5)	1023175
132 (500)	32 (820)	47 (1190)	54 (24.5)	791997
220 (830)	42 (1067)	41 (1041)	55 (25.0)	7809688
300 (1100)	43 (1092)	59 (1499)	70 (31.7)	7809687

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

Accessories

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" opening.

Part No.

PVC with Viton® seal	7809755
PVC with EPDM seal	7744374

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	7000300
PVC with EPDM seal	7744375

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

U.S. Mixers

Fig. 1

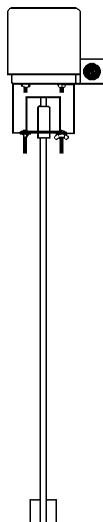
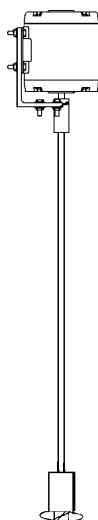


Fig. 2



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.

For U.S. only. For Canada mixers, see below.

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

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 15 gallon tanks:

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

7744385

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)

Canada Mixers

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

Motor: 1/20 HP

Mount: includes mounting bracket

Shaft: 316 SS shaft and propeller

7356679

High speed mixer for water-like fluids in 132 to 300 gallon tanks:

Motor: 1/4 HP

Mount: includes PVC mounting flange

Shaft: 316 SS shaft and propeller

7818565

Note: Both mixers for Canada only.

Pump & Systems Accessories

Float Switches

Float switches, two stage Float switch, two-stage: for beta, gamma/ L and delta pumps
(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 ProMinent gamma series.

Technical data:

Max. contact load 60 V, 0.3 A, 5 W/5 VA, temperature range -13°F to 167°F (-25°C to 75°C).

Materials:		Part No.
PP body, foamed PP float 7/8" (21 mm) dia., PE cable		
PP with 3-pole round connector	cable length 6 ft. (2 m)	7142093
	15 ft. (5 m)	7142095
PVC body, foamed PP float 7/8" (21 mm) dia., PE cable		
PVC with 3-pole round connector	cable length 6 ft. (2 m)	7142043
	15 ft. (5 m)	7142038
PVDF body, foamed PVDF float 1" (25 mm) dia., PE cable		
PVDF with 3-pole round connector	cable length 6 ft. (2 m)	7792639
	15 ft. (5 m)	7792640



2380/4

Ceramic weight for float switch

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

Float Switches

Float switches, single stage Float switch, single-stage: for Concept^{PLUS} & D series pumps
(includes ceramic weight – do not use ceramic weight for fluoride service)



2820/4

For minimum level indication with simultaneous shutdown of the metering pump. With a flat connector for direct connection to the D series ProMinent metering pumps.

Technical data:

Max. contact load 60 V, 0.3 A, 5 W/5 VA, temperature range -13°F to 167°F (-25°C to 75°C).

Materials:

Part No.

PP body, foamed PP float 7/8" (21 mm) dia., PE cable

PP with flat connector	cable length	6 ft. (2 m)	790412
		15 ft. (5 m)	790470

PVC body, foamed PP float 7/8" (21 mm) dia., PE cable

PVC with flat connector	cable length	6 ft. (2 m)	790414
		15 ft. (5 m)	790468

PVDF body, PVDF float 1" (25 mm) dia., PE cable

PVDF with flat connector	cable length	6 ft. (2 m)	790416
		15 ft. (5 m)	790472

Float switch weights



1086/4

Ceramic weight

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

404003

With single stage float switch, the weight may be slid over the flat connector needed for D-pumps.

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

PVC weight

For bottom of foot valve for fluoride applications.

7404007

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

Pump & Systems Accessories

Float Switches

Float switches, two stage for Sigma Control pumps



2380/4

Float switch, two-stage (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 ProMinent Vario series.

Technical data:

Max. contact load 60 V, 0.3 A, 5 W/5 VA, temperature range -13°F to 167°F (-25°C to 75°C).

Materials:

Part No.

PP body, foamed PP float 7/8" (21 mm) dia., PE cable		
PP with 3-pole round connector	cable length 6 ft. (2 m)	7142093
	15 ft. (5 m)	7142095
PVC body, foamed PP float 7/8" (21 mm) dia., PE cable		
PVC with 3-pole round connector	cable length 6 ft. (2 m)	7142043
	15 ft. (5 m)	7142038
PVDF body, foamed PVDF float 1" (25 mm) dia., PE cable		
PVDF with 3-pole round connector	cable length 6 ft. (2 m)	7142006
	15 ft. (5 m)	7142007

Float switches, single stage for Meta/Makro/Sigma basic pumps



2820/4

Float switch, single-stage (includes ceramic weight - do not use ceramic weight for fluoride service)

For minimum level indication in source tank. May be used to stop pump at motor starter or variable speed drive, or trigger alarm. May be used with relay combination.

Technical data:

Max. contact load 60 V, 0.3 A, 5 W/5 VA, temperature range -13°F to 167°F (-25°C to 75°C).

Materials:

PP body, foamed PP float 7/8" (21 mm) dia., PE cable		
PP with 2 loose cable ends	cable length 15 ft. (5 m)	790412
PVC body, foamed PP float 7/8" (21 mm) dia., PE cable		
PVC with flat connector	cable length 15 ft. (5 m)	790468
PVDF body, PVDF float 1" (25 mm) dia., PE cable		
PVDF with flat connector	cable length 15 ft. (5 m)	790472

Float switch weights

PVC weight

For bottom of foot valve for fluoride applications.

7404007

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

Pump & Systems Accessories

Suction Assemblies

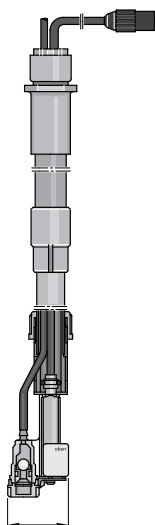
Suction assemblies, two-stage: for beta, gamma/ L and delta pumps

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

PVC version: Viton® o-rings, PVC 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

pump engineering specifications

analytical instrumentation

analytical sensors

Pump & Systems Accessories

Suction Assemblies

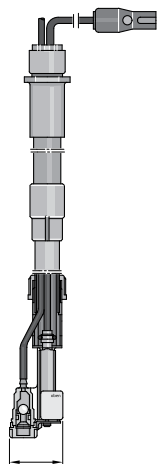
Suction assemblies, single-stage: for Concept^{PLUS} and D series pumps

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.

Single-stage: with *flat connector* for D series pumps.

PP version: PP float switch, PE suction line

PVC version: PVC float switch, PE suction line



2798/F

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.
PP single-stage float switch with flat connector **Length-adjustable**

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

Suction line

1/4" x 3/16"

1/2" x 3/8"

PVC version

1/4" x 3/16"

1/2" x 3/8"

Part No.

790356

790358

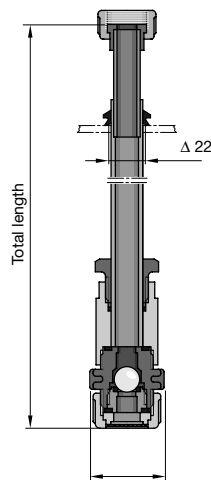
790350

790352

Pump & Systems Accessories

Suction Assemblies

Suction assemblies: for Sigma Basic, Meta 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 (litres)	Max. length inches (mm)	Part No.
PP-DN 10 - 1/2"	Sigma	220 (830)	up to 52" (1320)	790389
PP-DN 15 - 3/4"	Sigma	220 (830)	up to 52" (1320)	790394
PP-DN 20 - 3/4"	Meta/Makro	220 (830)	up to 52" (1320)	790395
PP-DN 25 - 1"	Meta/Makro/Sigma	220 (830)	up to 52" (1320)	790396
PP-DN 32 - 1-1/2"	Sigma	-	-	1005524

PVC without float switch

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

Float switch for rigid suction assemblies

PP, two-stage with round connector for SiCa pumps

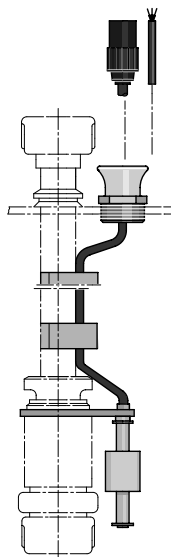
The float switch set can be ordered together with the suction assemblies 1/2" and 3/4".

3-pole round connector 10 ft. (3 m) cable 790321

PVC, two-stage with round connector for SiCa pumps

The float switch set can be ordered together with the suction assemblies 1/2" and 3/4".

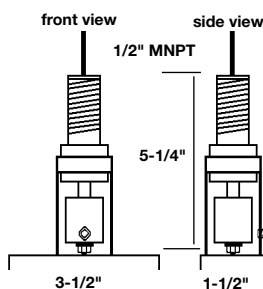
3-pole round connector 10 ft. (3 m) cable 790318



2803/3

Pump & Systems Accessories

Diaphragm-failure Detector



Diaphragm-failure detector

Part No.

To trip an alarm and/or switch the metering pump off in case of a. 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. offfluid. 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

7803640

N/C

7803650

For processing the alarm signal from the level switch we recommend the relay combination Part No. 914769.5 with wall-mounted plastic housing and 2 change-over relays. Or, the signal could actuate the remote pause feature on the gamma/a & b pumps or could stop any gamma pump if plugged into the float switch port. Connections available upon request.



Signal horn and strobe light 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

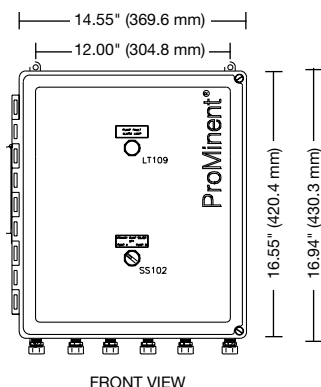
115 V, 60 Hz, NEMA 4X (e.g. for use in conjunction with fault annunciating relay or relay combination)

7914785

Universal Switchover Box

Two Pump Universal Switchover Box

Part No.

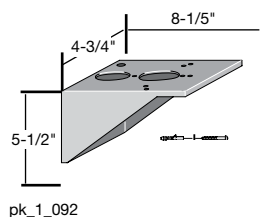


Automatic backup protection for ProMinent® microprocessor based electronic metering pumps. Accepts Manual, 4-20 mA Analog, or External contact modes of operation, and can switch operation back and forth between two metering pumps based on an external dry contact opening and closure. Pumps must be equipped with an alarm relay output. The unit is equipped with a 120 VAC power cord and a weatherproof duplex receptacle for metering pumps power. Specify control mode of metering pumps when ordering (i.e. Remote 4-20 mA analog Pacing or Water Meter Contact Pacing).

7951130

Pump & Systems Accessories

Pumps and Stands



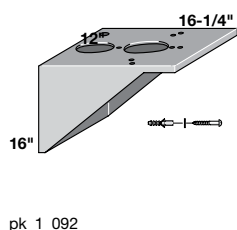
Wall mounting bracket for solenoid pumps

Part No.

Made of fiberglass-reinforced PPE, with wall-plugs and screws, accepting a gamma, beta, Pneumados, alpha or the D series metering pump. Pumps can be mounted either parallel or perpendicular to the wall, except the mikro g/5 and gamma/5 pumps, which can only be mounted parallel to the wall.

PPE wall mounting bracket

810164

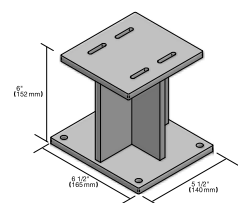


Wall mounting bracket for Vario, Sigma and Meta

Wall-mounting bracket for Vario, Sigma and Meta

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

7803799

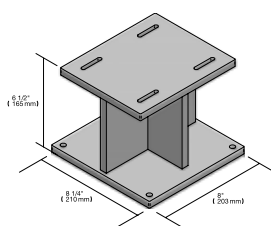


Floor mounting bracket for solenoid pumps

Polypropylene floor mounting bracket accepts pumps parallel to the floor.

6" PP floor mounting bracket

1028758

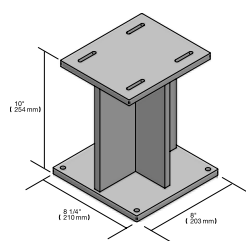


Floor mount bracket for Motor pumps

Polypropylene floor mounting bracket accepts pumps parallel to the floor.

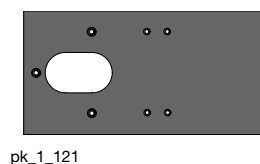
6-1/2" PP floor mounting bracket

1028759



10" PP floor mounting bracket

1028760



Adapter plate

With fixtures, for vertical wall-mounting of beta or gamma pumps with auto-degassing liquid ends. Used with PPE wall console.

PP adapter plate

1003030

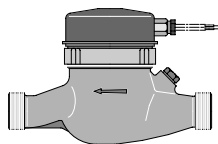
Pump & Systems Accessories

Water Meters

Pulse-type water meters for potable water

Contact water meter – US GPH Scale

max. operation temperature 104° F.



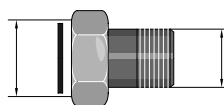
1137/4

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: Price includes two screw fittings.

*Please specify pulse rate desired

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

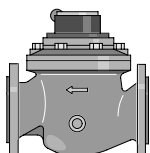


1139/4

3/4"	7359021
1"	7359022
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	Install. Length	Standard Gallon/ Pulse	Weight	Part No.
GPM	GPH	(L/h)	GPM	GPH	in.	in.		lb. (kg)	
2.6	156	(590)	650	39000	3" ASA	9" (225 mm)	10	42 (19)	7304512
4	240	(908)	1100	66000	4" ASA	10" (251 mm)	10	51 (23)	7304513
11	660	(2498)	1875	112500	6" ASA	12" (298 mm)	25	89 (40)	7304514

Pulse rates

Cold

3/4"	P/G	1, 2, 4, 10, 20, 40
1"	P/G	1, 2, 4, 10, 20, 40
1-1/2"	P/G	1, 2, 4, 10, 20, 40
2"	P/G	1, 2, 4, 10, 20, 40
3"	G/P	100, 1,000
4"	G/P	100, 1,000
6"	G/P	1,000, 10,000

Note: P/G = pulses per gallon
G/P = gallons per pulse

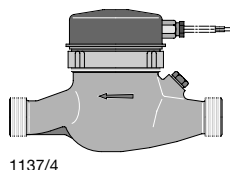
Pump & Systems Accessories

Water Meters

Pulse-type water meters, 3/4"...2" NPT fittings – Liter Scale

Max. working temperature 40°C, max. contact load 100 mA, 24 V

Max. flow rate = Q_{max} , nominal flow rate = Q_n



1137/4

$Q_{max} = Q_n$ NG = Nominal size (m ³ /h)	Connections in.	Overall length w/o unions mm	Standard K factor	Part No.
5	3/4"	190 mm (7.5")	1	304434
10	1"	260 mm (10.2")	1.5	304435
20	1-1/2"	300 mm (11.8")	2	304436
30	2"	270 mm (10.6")	4	304438

Note: Price includes two screw fittings.

*Please specify pulse rate desired

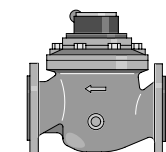
Other pulse rates available (liters per pulse out)

.05	1	5	40	300
.1	1.5	10	50	400
.25	2	15	100	500
.3	2.5	20	150	1000
.4	3	25	200	1500
.5	4	30	250	2000

Pulse-type water meters, 3"...6" flanged

Max. working temperature 40°C, max. contact load 100 mA, 24 V

Max. flow rate = Q_{max} , nominal flow rate = Q_n



1138/4

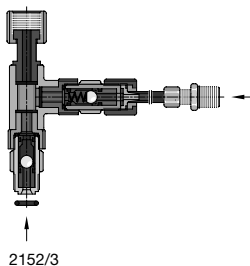
Q_{max}/Q_n (m ³ /h)	Connections in.	Overall length mm	Pulse spacing	Part No.
110/55	3" ASA	225 mm (9")	Please call	304439
180/90	4" ASA	251 mm (10")		304442
350/175	6" ASA	298 mm (12")		304443

Pump & Systems Accessories

Flushing Devices

Flushing devices

Fig. 1



To flush and clean liquid end, discharge line and injection valve, and to protect against deposits and crystallization. Manual or timer-controlled device. To be fitted to the suction connector of the metering pump (also suitable for retrofitting). The automatic version comprises flushing device, timer, solenoid valve and the required connectors.

Flushing device, manual, High Viscosity version

Part No.

For tubing connectors 1/4" x 3/16" and 1/2" x 3/8" (Fig. 1)

809909

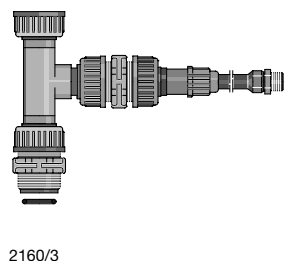
For 1/2" MNPT connection for g/4 PP4/5, g/5 0423 and 0230 (Fig. 2)

7809917

For 1/2" MNPT connection for g/5 PP4/5 series

7809919

Fig. 2



Flushing device, manual, PVC version

For tubing connectors 1/4" x 3/16" and 1/2" x 3/8" (Fig. 1)

809925

For 1/2" MNPT connection for g/5 0423 and 0230 (Fig. 2)

7809926

Note: Call for info on automatic devices.

2160/3

Pump & Systems Accessories

Valve Springs

Valve springs

Fig. 1

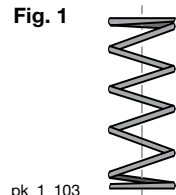
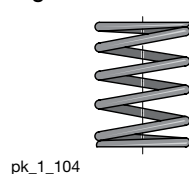


Fig. 2



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.

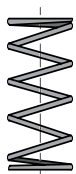
	Pressure Rating		Material of	Construction	Part No.
	psig	(bar)			
Suction and Discharge Valves Model #'s: BT/4 & G/L 1000, 1601, 1602, 1005, 1605 (Fig. 1)	1	(0.05)	316 SS		469406
	14	(1.0)	316 SS		469401
Suction and Discharge Valves, and Injection Valves Model #'s: BT/4 & G/L 0708, 0413, 0220, 1008, 0713, 0420, 0232 (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: G/b 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: G/b 1006, 1310, 0813 PP4/PP5 only, plus Injection Valves: Models 1006, 1310 and 0813 PP4/PP5	1	(0.05)	Hastelloy C		469107
	1	(0.05)	302 SS		7469404
	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>): BT/4 & G/L 1601, 1602, 1005, and 1605	21	(1.5)	Hastelloy C		791052

Pump & Systems Accessories

Valve Springs

Valve springs

Fig. 1

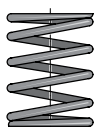


pk_1_103

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/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/1 Sigma/2 models 12050, 12090, 12130 Hydro	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
	1	(0.05)	302 SS	7469404
DN 20 Valves: Meta/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: Meta/Makro models with 1" connectors 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
	1	(0.05)	302 SS	7469403
DN 40 Valves: Meta/Makro models with 1-1/2" connectors	7	(0.5)	Hastelloy C	469104
	7	(0.5)	PVDF-coated Hastelloy C	818519
	14	(1.0)	Hastelloy C	469137
Meta/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

Gaskets

Gaskets

Virgin White Teflon gaskets for PTFE/SS liquid ends.

Part No.

DN 10	Vario/Sigma	483957
DN 15	Sigma/Vario	483921
DN 20	Meta/Sigma	483922
DN 25	Meta/Sigma	483923
DN 32	Sigma	7744320
DN 40	Makro	483951

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.

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	**184TC	230V	1 phase	7951141
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
1/3 HP	56-C	115/208-230V	1 phase	*7500344
1/2 HP	56-C	208-230/460V	3 phase	**7746261
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 HP	56-C	208-230/460V	3 phase	7744983
1-1/2 HP	56-C w/base	208-230/460V	3 phase	7951002
3 HP	***182TC	208-230/460V	3 phase	7951001

* For use with Sigma/1 basic pumps only. Includes necessary mounting hardware.

** Sigma/1 basic Explosion-Proof motors for VFD applications. Includes necessary mounting hardware.

*** 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 4/12 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 HP motors with line voltage 208-230 VAC, 3 phase	7961001
3 phase AC output: 4.5 A	
Weight: 7 lbs (3.2 kg)	
Dimensions: (H x W x D) 12 x 5.5 x 4.7" (305 x 140 x 120 mm)	
For 1-1/2 to 2 HP motors with line voltage 208-230 VAC, 3 phase	7961002
3 phase AC output: 7.5 A	
Weight: 18 lbs (8.2 kg)	
Dimensions: (H x W x D) 13.3 x 11 x 6.25" (338 x 280 x 159 mm)	
For 1/4 to 1 HP motors with line voltage 380-460 VAC, 3 phase	7961003
3 phase AC output: 2.1 A	
Weight: 12 lbs (5.4 kg)	
Dimensions: (H x W x D) 11.1 x 8.8 x 6.25" (282 x 224 x 159 mm)	
For 1-1/2 to 2 HP motors with line voltage 380-460 VAC, 3 phase	7961004
3 phase AC output: 3.4 A	
Weight: 12 lbs (5.4 kg)	
Dimensions: (H x W x D) 11.1 x 8.8 x 6.25" (282 x 224 x 159 mm)	
For 3 HP motors with line voltage 208-230 VAC, 3 phase	7744984
For 3 HP motors with line voltage 380-460 VAC, 3 phase	7744985

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	7744373
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

Pump & Systems Accessories

Variable Speed Drives

Dart DC SCR Drives with Motors

Dart DC SCR drives with motors

DC SCR variable speed motor and drive system, 1725 RPM max., AC line input voltage 120 (for 90 VDC motors) or 240 VAC (for 180 VDC motors), 1 phase, 50/60 Hz.

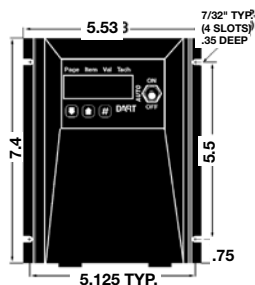
1/3 HP to 1/2 HP models with DC 56C frame TENV motors.

3/4 HP to 1-1/2 HP models with DC 56C/143TC frame TEFC motors.

Manual mode: Output voltage to motor is proportional to potentiometer setting between 20% and 100%. **In manual mode, setting 0 VDC output = 20% setting on potentiometer.**

Auto mode: Output voltage to motor is proportional to external 4-20 mA input (20 mA = 100%, 4 mA = 0%). Linearity is excellent between 100% and 10% (20 to 5.6 mA), and drops off below 10%. With manual/off/auto (external) switch. NEMA 4/12 enclosure.

1/3 HP SCR drive w/90 VDC motor	} (requires 115/230 VAC input, 1 phase)	Part No.
1/2 HP SCR drive w/90 VDC motor		7951015
3/4 HP SCR drive w/90 VDC motor		7951010
1-1/2 HP SCR drive w/180 VDC motor (requires 208-240 VAC input, 1 phase)		7951011
		7951020



Dart DC SCR drives and motors with tach feedback

DC SCR variable speed motor, tachometer and drive system, 1725 RPM max., AC line input voltage 120 or 240 VAC, 1 phase, 50/60 Hz. DC output 90 or 180 volts.

1/3 HP to 1/2 HP models with DC 56C frame TENV motors; 3/4 HP to 1-1/2 HP models with DC 56C/143TC frame TEFC motors. Tachometer mounted between motor C-face and pump flange.

Includes long motor coupling to accommodate tach.

Manual mode: Digital RPM control by up/down keypad, LED read-out in RPM or programmable engineering units (e.g. percent, strokes/min., flow rate, etc.). Actual RPM measured by tach corresponds to manual setpoint. Minimum speed 8 RPM.

External mode: Actual RPM measured by tach is proportional to analog 4-20 mA input (20 mA = 100%, 4 mA = 0%). Minimum speed 8 RPM.

1/3 HP SCR drive w/90 VDC motor and tach (requires 115 VAC input)	7951090
1/2 HP SCR drive w/90 VDC motor and tach (requires 115 VAC input)	7951094
3/4 HP SCR drive w/90 VDC motor and tach (requires 115 VAC input)	7951095
1-1/2 HP SCR drive w/180 VDC motor and tach (requires 230 VAC input)	7951096
1/2 HP SCR drive w/90 VDC motor and tach MD30P-panel mount	7951127
3/4 HP SCR drive motor and tach MD30P-panel mount	7951128

Pump & Systems Accessories

Variable Speed Drives

KB Penta SCR Drives with Motors

KB Penta SCR drives with motors

SCR variable speed motor and drive system, 1725 RPM max.,
AC line input voltage 120 (for 90 VDC motors) or 240 VAC (for 180 VDC motors),
1 phase, 50/60 Hz.

1/3 HP to 1/2 HP models with DC 56C frame TENV motors.
3/4 HP to 1-1/2 HP models with DC 56C/143TC frame TEFC motors.

Local mode: Output voltage to motor is proportional to potentiometer setting between 20% and 100%.

Remote mode: Output voltage to motor is proportional to external 4-20 mA input (20 mA = 100%, 4 mA = 0%). Linearity is excellent between 100% and 10% (20 to 5.6 mA), and drops off below 10%. With START/STOP and LO-CAL/REMOTE switches. NEMA 4X enclosure.

1/3 HP SCR drive w/90 VDC motor (requires 115 VAC input)	Part No. 7500086
1/2 HP SCR drive w/90 VDC motor (requires 115 VAC input)	7500087
3/4 HP SCR drive w/90 VDC motor (requires 115 VAC input)	7500088
1-1/2 HP SCR drive w/180 VDC motor (requires 230 VAC input)	7500089

Dart and KB-Penta DC SCR drive without motor

Variable speed drive for controlling the voltage output to DC motors. Motor not included with SCR. See motor section for selection.

KB Penta SCR Drive without Motor

2 HP Max, 90/180 VDC Out, 120/240 VAC In, SCR Drive, KB Penta KBPC-240D 7961005
(with 120 VAC Input, drive rating is 1 HP @ 90 VDC to motor)

Dart 250 Series Variable Speed DC Control

2 HP Max, 90/180 VDC Out, 120/240 VAC In, SCR Drive, 253-200E-7-4X 7740941
(with 120 VAC Input, drive rating is 1 HP @ 90 VDC to motor)

Dart MDII Series Programmable Drives (requires tachometer, below)

1 HP Max, 90 VDC Out, 120 VAC In, SCR Drive, MD30E-7	7951120
2 HP Max, 180 VDC Out, 240 VAC In, SCR Drive, MD30P-5-7	7951124
1 HP Max, 90 VDC Out, 120 VAC In, SCR Drive, MD30P Panel Mount	7951126
2 HP Max, 180 VDC Out, 240 VAC In, SCR Drive, MD30P-5 Panel Mount	7951129

C-Faced Tachometers for Programmable Dart SCR Drives above

NEMA 56C, 60 Pulses per revolution, Dart CF-H60	7951121
NEMA 143TC, 145TC, 182C, 184C, 60 Pulses per revolution, Dart CF-J60	7951122

Pump & Systems Accessories

Motors - Canadian

AC Motors *(for Canadian customers only)

AC motors

All AC Motors are approved by CSA.

All motors are 1725 RPM, 60 Hz, manufacturers may vary.

Horsepower	Enclosure	Frame	AC Voltage	Phase	Part No.
1/3 HP	TEFC	56 C	115 / 208-230	1 phase	7901317
1/3 HP	TEFC	56 C	208-230 / 460	3 phase	7901329
1/3 HP	TEFC	56 C	575	3 phase	7901323
1/2 HP	TEFC	56 C	115 / 208-230	1 phase	7901318
1/2 HP	TEFC	56 C	208-230 / 460	3 phase	7901330
1/2 HP	TEFC	56 C	575	3 Phase	7901324
3/4 HP	TEFC	56 C	115 / 208-230	1 phase	7901319
3/4 HP	TEFC	56 C	208-230 / 460	3 phase	7901331
3/4 HP	TEFC	56 C	575	3 phase	7901325
1 HP	TEFC	56 C	115 / 208-230	1 phase	7901320
1 HP	TEFC	56 C	208-230 / 460	3 phase	7901332
1 HP	TEFC	56 C	575	3 phase	7901326
1-1/2 HP	TEFC	56 C	115 / 208-230	1 phase	7901321
1-1/2 HP	TEFC	56 C	208-230 / 460	3 phase	7901333
1-1/2 HP	TEFC	56 C	575	3 phase	7901327
3 HP*	TEFC	182 TC	208-230 / 460	3 phase	7901334
3 HP*	TEFC	184 C	575	3 phase	7901322
3 HP*	TEFC	182 TC	575	3 phase	7901328

* Must use adapter (see below)

AC explosion-proof motors

All motors come with an explosion proof conduit box and built in overload protection.

CSA approved for Class I Group C and D, or Class II Group F and G.

Manufacturer may vary.

Horsepower	Enclosure	Frame	AC Voltage	Phase	Part No.
1/3 HP	EXP	56 C	115 / 208-230	1 phase	7901335
1/3 HP	EXP	56 C	208-230 / 460	3 phase	7901339
1/3 HP	EXP	56 C	575	3 phase	7901340
1/2 HP	EXP	56 C	115 / 208-230	1 phase	7901336
1/2 HP	EXP	56 C	208-230 / 460	3 phase	7901341
1/2 HP	EXP	56 C	575	3 phase	7901342
3/4 HP	EXP	56 C	115 / 208-230	1 phase	7901337
3/4 HP	EXP	56 C	208-230 / 460	3 phase	7901343
3/4 HP	EXP	56 C	575	3 phase	7901344
1 HP	EXP	56 C	115 / 208-230	1 phase	7901338
1 HP	EXP	56 C	208-230 / 460	3 phase	7901345
1 HP	EXP	56 C	575	3 phase	7901346
1-1/2 HP	EXP	56 C	208-230 / 460	3 phase	7901347
1-1/2 HP	EXP	56 C	575	3 phase	7901348

***Flange Adapter** (Required for installing 3 HP motors or motors with 182/184 frames)

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

Pump & Systems Accessories

Variable Speed Drives - Canadian

AC Inverter *(for Canadian customers only)

Provides variable motor speed with three phase AC Motors by adjusting the frequency (Hz) output to the motor. The motor is not included with the inverter. Choose the motor from the AC Inverter Duty Rated Motors section following the listing of Inverters. Push button keypad and display for Hertz, RPM, % Frequency.

All Inverter AC output voltage is 3 phase.

Maximum Motor HP	AC Input	Phase	AC Output	Dim. (mm) H x W x D	Enclosure	Part No.
1/2 HP	120/240	1 ph	230 V 2.2 A	200 x 200 x 95	NEMA 4	7901357
1/2 HP	200/240	3 ph	230 V 2.2 A	200 x 155 x 110	NEMA 4	7901360
1 HP	120/240	1 ph	230 V 4 A	200 x 200 x 125	NEMA 4	7901363
1 HP	200/240	3 ph	230 V 4 A	200 x 155 x 110	NEMA 4	7901366
1 HP	400/480	3 ph	460 V 2 A	200 x 155 x 110	NEMA 4	7901369
1 HP	590	3 ph	575 V 1.6 A	200 x 155 x 110	NEMA 4	7901372
1-1/2 HP	120/240	1 ph	230 V 5.2 A	200 x 200 x 125	NEMA 4	7901375
1-1/2 HP	200/240	3 ph	230 V 5.2 A	200 x 200 x 125	NEMA 4	7901378
2 HP	200/240	3 ph	230 V 6.8 A	200 x 200 x 125	NEMA 4	7901381
2 HP	400/480	3 ph	460 V 3.4 A	200 x 200 x 125	NEMA 4	7901384
2 HP	590	3 ph	575 V 2.7 A	200 x 200 x 125	NEMA 4	7901387
3 HP	200/240	3 ph	230 V 9.6 A	200 x 200 x 150	NEMA 4	7901390
3 HP	400/480	3 ph	460 V 4.8 A	200 x 200 x 125	NEMA 4	7901393
3 HP	590	3 ph	575 V 3.9 A	200 x 200 x 125	NEMA 4	7901396

AC Inverter Duty Rated Motors *(for Canadian customers only)

HP	Enclosure	Frame	AC Voltage	Phase	Part No.
1/3 HP	TEFC	56 C	230/460	3 phase	7902404
1/3 HP	TEFC	56 C	575	3 phase	7902407
1/2 HP	TEFC	56 C	230/460	3 phase	7902405
1/2 HP	TEFC	56 C	575	3 phase	7902408
3/4 HP	TEFC	56 C	230/460	3 phase	7902406
3/4 HP	TEFC	56 C	575	3 phase	7902409
1 HP	TEFC	56 C	208-230 / 460	3 phase	7901332
1 HP	TEFC	56 C	575	3 phase	7901326
1-1/2 HP	TEFC	56 C	208-230 / 460	3 phase	7901333
1-1/2 HP	TEFC	56 C	575	3 phase	7901327
3 HP*	TEFC	182 TC	208-230 / 460	3 phase	7901334
3 HP*	TEFC	184 C	575	3 phase	7901322
3 HP*	TEFC	182 TC	575	3 phase	7901328

* Flange Adapter 7951144 Required for installing 3 HP motors or motors with 182/184 frames.

Pump & Systems Accessories

Variable Speed Drives - Canadian

DC Motors *(for Canadian customers only)

DC motors

Permanent magnet 1750 RPM.

<u>Horsepower</u>	<u>Enclosure</u>	<u>Frame</u>	<u>AC Voltage</u>	<u>Part no.</u>
1/3 HP	TEFC	0 – 90 VDC	56 C	7902413
1/2 HP	TEFC	0 – 90 VDC	56 C	7902412
3/4 HP	TEFC	0 – 90 VDC	56 C	7356703
1-1/2 HP	TEFC	0 – 180 VDC	56 C	7902411

SCR Control for DC Motors *(for Canadian customers only)

The SCR control does not come with a motor. Select the required DC motor from the DC motor list.

The KB Penta DC Drive is used to control the DC voltage to DC motors. This controls the speed of the motor. The DC voltage is variable from 0 – 90 VDC or 0 – 180 VDC which represents 0 to approximately 1750 RPM motor speed. Features of this drive include: Manual –OFF – Auto selector switch; Speed pot for manual motor speed control; Auto motor speed control via an isolated 4 – 20 mA input. Single phase line input voltage is selectable as 120 VAC (for 0 – 1 HP motors 0 – 90 VDC) or 230 VAC (for 0 – 2 HP motors 0 – 180 VDC).

For motors 0 – 1 HP, 120 VAC in 0 – 90 VDC out

For motors 0 – 2 HP, 230 VAC in 0 – 180 VDC out

KB Penta DC Drive SCR Controller 7356704

Economy KB Penta AC Drive *(for Canadian customers only)

This lower cost AC inverter can control motor speed on AC motors up to 1 HP. It has a selectable 115 VAC or 230 VAC input and generates a 230 VAC 3 phase 3.6 A output. Features include switch selectable manual / auto operation, Manual speed control via local potentiometer and Auto speed control via a 4 – 20 mA input. Motor is not included with the drive, select the motor from the AC Inverter Duty Rated Motor list.

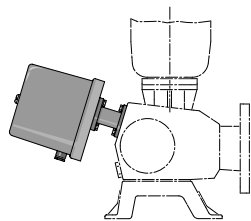
Dimensions (mm) 241 x 140 x 148 (H x W x D)

Economy KB Penta AC Drive 7902410

Pump & Systems Accessories

Stroke-positioning Motors

Analog Stroke Positioning Systems



1025/2

Analog stroke-positioning system:

Note: Stroke positioning motors must be field wired to remove power when the pump drive motor is stopped. For automatic stroke-length control with positioning motor, controlled by a standard process signal.

Technical data:

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

Power supply: 115V 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

Type	115 V	230 V
Vario	807098	
Meta HM (4 mm)	803887	
Sigma/2 HM (5 mm)	1018894	1018893
Meta HM (6 mm)	1001826	
Meta HK	803506	803879
Sigma/2 HK	1018890	1018889
Sigma/3	1006504	1006505
Makro	1020798	
ProMus	852752	852752

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)	7404233
	Ceramic	1/4"	(4.8)	404201
For use with 9.5 mm valve only	PTFE	1/2"	(9.5)	7404206
	SS	1/2"	(9.5)	7404240
For use with 9.2 mm (standard) valve	Ceramic	1/2"	(9.2)	404281

Special valve balls

For metering pumps and accessories if standard materials are unsuitable.



11.1 mm dia. for DN 10 (Vario/ Sigma)

Part No.

PTFE (1/2" MNPT connection)	7404207
Ceramic (1/2" MNPT connection)	404277
SS (3/8" FNPT connection)	404243



16 mm dia. for DN 15 (Vario/ Sigma)

PTFE (3/4" MNPT connection)	7404208
Ceramic (3/4" MNPT connection)	404275
SS (1/2" FNPT connection)	404244

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

PTFE	404256
Ceramic	404273
SS	404246

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

PTFE	404257
Ceramic	404274
SS	404247

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

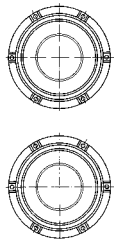
PTFE	404261
Ceramic	404278
SS	7404260

Pump & System Accessories

Viton® Diaphragms

Motor Pump diaphragms

ProMinent pump diaphragm made from a steel core with Viton® facing. Particularly suited for media tending to crystalize, such as silicate.



1047_4_1

Viton® for pump type:	Max. working pressure	Part No.
Sigma/1 12017, 12035, 10050	87 psi (6 bar)	1010281
Sigma/1 10022, 10044, 07065	87 psi (6 bar)	1010284
Sigma/1 07042, 04084, 04120	87 psi (6 bar)	1010287
Sigma/2 12050, 12090, 12130	87 psi (6 bar)	1018953
Sigma/2 07120, 07220, 04350	87 psi (6 bar)	1018984
Sigma/3 120145, 120190, 120270, 120330	87 psi (6 bar)	1006564
Sigma/3 070410, 070580, 040830, 041030	87 psi (6 bar)	1006566
Meta/Makro 130	87 psi (6 bar)	7811470
Meta/Makro 260	87 psi (6 bar)	7811471

Viton® is a registered trademark of Dupont Dow Elastomers

product
reference

solonoid-driven
metering pump

motor-driven
metering pump

pump spare parts &
accessories

pump engineering
specifications

analytical
instrumentation

analytical
sensors