INFORMATION

UPC #6-70686-

TEMPERATURE VARIATION AND WORKING PRESSURE CHART

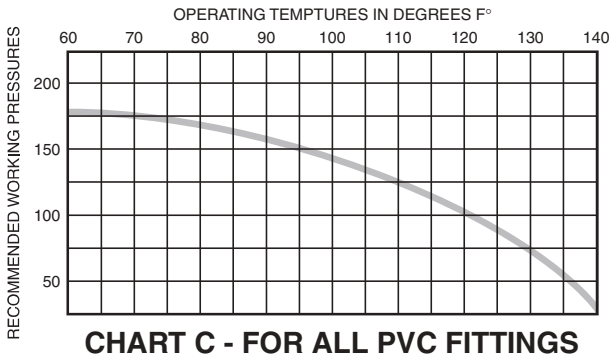


CHART C - FOR ALL PVC FITTINGS

IMPORTANT

Non shock valves manufactured from PVC Type 1 material

WATER HAMMER – NDS requires that all VC plastic piping systems be designed and constructed to **AVOID EXCESSIVE WATER HAMMER.** Water hammer can cause damage, and failure to pipe, valves, and fittings within the piping system. Not recommended in any shock applications.

NDS **DOES NOT RECOMMEND** the use of thermoplastic piping products for systems to transport or store compressed air or gases, or the testing of thermoplastic piping systems with compressed air or gases in above and below ground locations. The use of our product in exposed, compressed air or gas systems automatically voids our warranty for such products and its use against our recommendations is entirely the responsibility and liability of the installer.

NDS will not accept responsibility for damage or impairment of its products, or other consequential or incidental damages caused by misapplication, incorrect assembly, and/or exposure to harmful substances or conditions. See warranty on back cover.

Check valves are suitable for usage on grinder pump systems as long as the grinder pump is inspected for proper usage, and is on a preventative maintenance schedule.

NDS does not recommend using a F T (female) VC fitting with a M T (male) metal fitting; ASTM F1498. Unless the female VC fitting is used with a metal reinforcement ring, it may expand beyond its strength around a metal fitting, which can result in cracks and leaks.

CLAMP IT™ / FLO-TAP SADDLES

CLAMP-IT SADDLE DRILL SIZES

OUTLET SIZE OVER 2½" PIPE	DRILL SIZE
¾" I S S & F T	¾"
1" I S S & F T	1"
1¼" I S S & F T	1¼"
1½" I S S & F T	1⅜"
2" I S S & F T	2"

For 2½" I S Saddle with a 2" outlet – Drill Size must be 1½" due to pipe restriction

FLO-TAP™ HOT/WET TAP SADDLES

For ¾" and 1":
To drive cutter use a standard ⅜" ratchet with a 6" extension.
TA Cuts .750" hole.

For 1½" and 2":
To drive cutter use a standard ½" ratchet with a 6" extension.
TA Cuts 1.250" hole.

Captures Coupon – No pipe chips in water system. CAUTION: Do not tap any VC pipes with wall thickness exceeding .540" (8"C – 900 SDR 18, CLASS 150.) Refer to temperature variation and working pressure chart on page 26 for maximum pressure vs. maximum temperature.

NOT FOR USE WITH COM RESSED AIR OR NATURAL GAS LINES.

TECHNICAL DATA

NDS requires that the local and state plumbing codes be reviewed and understood prior to installing any of Flo Control's products. These codes will provide proper installation procedures.

1. PVC MATERIAL SPECIFICATION PVC Type I, Grade I, Cell Class 12454-B meeting requirements of ASTM D-1784-03 is used in the manufacturing of all fittings recommended for use of potable cold water (see chart C for temperature vs. pressure). Not recommended for use on systems exceeding 100 psi at 120 degrees F.

2. CPVC MATERIAL SPECIFICATION CPVC Type IV, Grade I, Cell Class 23447-B meeting requirements of ASTM D-1784-03 is used in the manufacturing of all fittings recommended for use on potable Hot Water Systems in accordance with ASTM D-2846-73. Not recommended for use on systems that will exceed 100 psi at 180 degrees F.

3. BUNA-N SEALS are in accordance with ASTM D-2000. It is generally resistant to many hydrocarbons, fats, oils, greases, hydraulic fluids and chemicals. It is generally attacked by Ozone, Ketones, Esters, Aldehydes, chlorinated and nitro hydrocarbons. Reference chemical resistance under NBR (Nitrile) Elastomers for specific listings.

4. EPDM O-RINGS The o-ring material is made of high quality EPDM (Ethylene Propylene Copolymer) which is in accordance with ASTM D-2000. EPDM has exceptionally good weather aging and ozone resistance, excellent water and chemical resistance, and excellent aging resistance for most applications. EPDM is a polymer where oil and solvent resistance is poor. However, it is fairly good in ketones and alcohols. Reference chemical resistance under EPDM, EPT, or EPR Elastomers for specific listings.

5. DOUBLE SEAL of standard compression fitting. A compressive action is created as the cap is tightened squeezing the Buna-N seals into the tapered recessed areas of the cap and body. This process creates a highly concentrated pressure at the two "double seal" points, thus providing positive protection against leakage. (See Figure A)

6. ACME THREAD General purpose 10 pitch and 5 pitch Acme thread on Compression Cap section, eliminates the possibility of cross threading. This smooth running design prevents binding or galling as is often experienced in standard tapered threads.

7. SPRINGS Series 300 Stainless Steel.

INSTALLATION INSTRUCTIONS

NOTE: NDS does not recommend using a FPT (female) PVC fitting with a MPT (male) metal fitting; ASTM F1498. Unless the female PVC fitting is used with a metal reinforcement ring, it may expand beyond its strength around a metal fitting, which can result in cracks and leaks.

1. COMPRESSION FITTINGS Compression cap should be drawn up hand tight to insure proper alignment and seating of gasket, then tighten ¾ to 1 turn with a Flo Spanner Wrench or strap wrench. Average torque should be approximately 25 foot pounds on ½" through 2" IPS, and 35 foot pounds on 2½" and larger IPS. Compression fittings are not for use on compressed air lines or natural gas lines. When installing the Standard Compression Seal fittings the pipe line must be restrained from lateral movement by thorough soil compaction on straight runs and thrust blocking at change of direction or reduction in size. Not for use on pipe lines suspended on hangers.

2. PIPE THREADS Use teflon tape on all IPS thread connections. IPS thread connection should be made hand tight plus ½ to ¾ turn with a wrench.

3. FLO LOCK ADAPTERS for use on pipe with wall thickness of SDR-26, Class 160 or greater and copper tubing. Not recommended for use on galvanized pipe unless surface is sanded smooth. (See Figure B)

4. SOLVENT WELDING – NDS requires that all parts that are to be solvent cemented are clean of any and all foreign materials. Solvent cement manufacturers include installation instructions on the container. It is important to follow correct cementing instructions to avoid problems. Excessive cement or the incorrect type of cement can cause failures in thermoplastic products.

FIG.A STANDARD COMPRESSION

SERIES
110 IPS
120 IPS
130 IPS
210 CTS
220 CTS
310 IPS
410 CTS
420 CTS

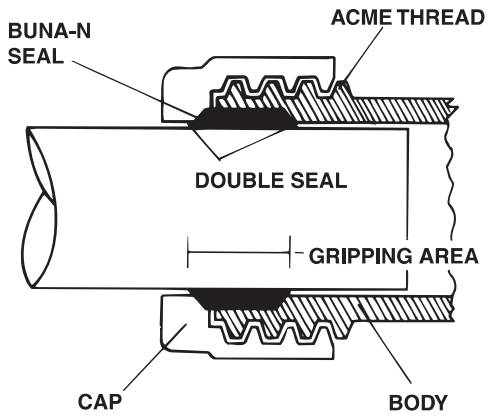
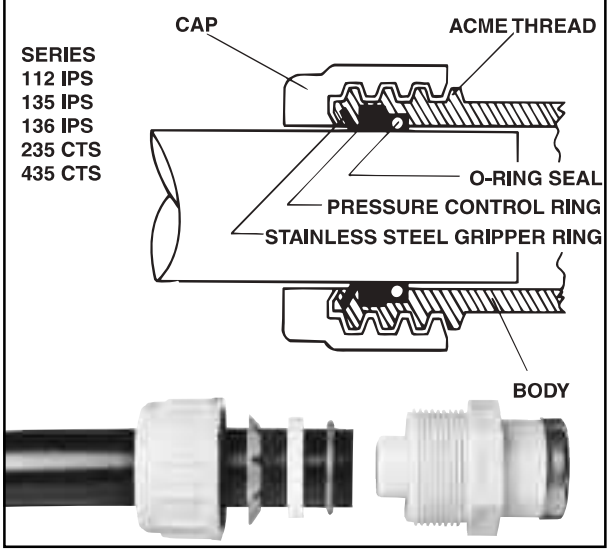


FIG.B FLO-LOCK COMPRESSION

SERIES
112 IPS
135 IPS
136 IPS
235 CTS
435 CTS



PIPE SIZE LEGEND

Abbreviation	Description
CTS	Copper Tube Size
IPS	Iron Pipe Size (same as Sched 40 OD)
SDR	PE Tubing Size
SIDR	PE Tubing Size
TS	PE Tube Size

CONNECTION TYPE LEGEND

Abbreviation	Description
Spg	Spigot
MPT	Male Pipe Taper Thread
FPT	Female Pipe Taper Thread
S	Slip
U	Union fitting with Slip connection
U x U	True Union — Slip connection w/ Union on each end
UC	Union fitting with Compression connection
FHT	Female Hose Thread
MHT	Male Hose Thread
MIP	Male Iron Pipe

PIPE & TUBE DIMENSIONS

ASTM	SIDR-7	OD	ID	Wall
D2239	¾"	1.060	0.824	0.118
	1"	1.349	1.049	0.150
	1¼"	1.774	1.380	0.197
	1½"	2.070	1.610	0.230
	2"	2.657	2.067	0.295
	SIDR-9	**OD**	**ID**	**Wall**
D2239	¾"	1.008	0.824	0.092
	1"	1.283	1.049	0.117
	1¼"	1.686	1.380	0.153
	1½"	1.968	1.610	0.179
	2"	2.527	2.067	0.230
	SDR-9	**OD**	**ID**	**Wall**
D2737	¾"	0.875	0.681	0.097
	1"	1.125	0.875	0.125
	1¼"	1.375	1.069	0.153
	1½"	1.625	1.263	0.181
	2"	2.125	1.653	0.236
	SDR-11	**OD**	**ID**	**Wall**
D2737	¾"	0.875	0.715	0.080
	1"	1.125	0.921	0.102
	1¼"	1.686	1.436	0.125
	SDR-13.5	**OD**	**ID**	**Wall**
D3035	¾"	1.050	0.874	0.078
	1"	1.315	1.101	0.097
	1¼"	1.660	1.394	0.123
	1½"	1.900	1.598	0.141
	2"	2.375	2.002	0.176
	SCH 40	**OD**	**ID**	**Wall**
D1785	½"	0.840	0.622	0.109
	¾"	1.050	0.824	0.113
	1"	1.315	1.049	0.133
SCH 40	1¼"	1.660	1.380	0.140
FITTINGS	1½"	1.900	1.610	0.145
D2466	2"	2.375	2.067	0.154
	2½"	2.875	2.469	0.203
	SCH 80	**OD**	**ID**	**Wall**
D1785	½"	0.840	0.546	0.147
	¾"	1.050	0.742	0.154
	1"	1.315	0.957	0.179
	1¼"	1.660	1.278	0.191
SCH 80	1½"	1.900	1.500	0.200
FITTINGS	2"	2.375	1.939	0.218
D2467	2½"	2.875	2.323	0.276
	CTS TYPE L	**OD**	**ID**	**Wall**
B88	½"	0.625	0.545	0.040
	⅝"	0.750	0.666	0.042
	¾"	0.875	0.785	0.045
	1"	1.125	1.025	0.050
	1¼"	1.375	1.265	0.055
	1½"	1.625	1.505	0.060
	2"	2.125	1.985	0.070
	2½"	2.625	2.465	0.080
	3"	3.125	2.945	0.090

Note: All dimensions are nominal. All weights are for shipping purposes only. Price (U.S. Dollars) and availability are subject to change.

FLO CONTROL, INC

MAXIMUM RECOMMENDED FLOW VELOCITIES THROUGH FLO CONTROL PLASTIC VALVES

VALVE SIZES

FLOW G.P.M	1/2" VELOCITY F.P.S.	3/4" VELOCITY F.P.S.	1" VELOCITY F.P.S.	1 1/4" VELOCITY F.P.S.	1 1/2" VELOCITY F.P.S.	2" VELOCITY F.P.S.	2 1/2" VELOCITY F.P.S.	3" VELOCITY F.P.S.	4" VELOCITY F.P.S.	6" VELOCITY F.P.S.	FLOW G.P.M
1	1.05	0.06	0.37								1
2	2.11	1.20	0.74	0.43							2
3	3.17	1.80	1.11	0.64	0.47						3
4	4.22	2.41	1.48	0.86	0.63						4
5	5.28	3.01	1.86	1.07	0.79						5
6	6.33	3.61	2.23	1.29	0.95	0.57					6
8	8.44	4.81	2.97	1.72	1.26	0.76	0.54				8
10	10.55	6.02	3.71	2.15	1.58	0.96	0.67				10
15		9.02	5.57	3.22	2.36	1.43	1.01	0.65			15
20			7.42	4.29	3.15	1.91	1.34	0.87			20
25			9.28	5.36	3.94	2.39	1.67	1.08			25
30			11.14	6.33	4.73	2.87	2.01	1.30			30
35				7.51	5.62	3.35	2.35	1.52	0.88		35
40				8.58	6.30	3.82	2.64	1.73	1.01		40
45				9.65	7.09	4.30	3.01	1.95	1.13		45
50				10.72	7.88	4.78	3.35	2.17	1.26		50
60					9.46	5.74	4.02	2.60	1.51		60
70					11.03	6.69	4.69	3.04	1.76		70
80						7.65	5.36	3.47	2.02		80
90						8.60	6.03	3.91	2.27		90
100						9.56	6.70	4.34	2.52	1.11	100
125						11.95	8.38	5.42	3.15	1.39	125
150							10.05	6.51	3.78	1.67	150
175								7.59	4.41	1.94	175
200								8.68	5.04	2.22	200
225								9.76	5.67	2.50	225
250								10.85	6.30	2.78	250
275									6.93	3.05	275
300									7.56	3.33	300
325									8.19	3.61	325
350									8.82	3.89	350
375									9.45	4.17	375
400									10.08	4.44	400
425										4.72	425
450										5.00	450
475										5.28	475
500										5.55	500
550										6.11	550
600										6.67	600

NOTE: FLO CONTROL DOES NOT RECOMMEND THE USE OF ANY PLASTIC PIPE SYSTEM WITH FLOW VELOCITIES EXCEEDING 5.00 FEET PER SECOND (F.P.S.). FLOW VELOCITIES ABOVE 5.00 F.P.S. ARE SHOWN IN SHADED AREA.