



"Your Green Heating & Cooling Professionals
Dedicated to Serving Your and Your Community"

Plumbing Submittals

**Yakima Health Clinic
9005 SE Foster Rd.
Portland, OR 97266**

**General Contractor
O'Neill / Walsh Community Builders
2905 SW First Avenue
Portland, OR 97201**

**Submitted By
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MBE Certification #8561*



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22_10_00

Plumbing Piping and Pumps

COPPER TUBE FOR PLUMBING AND MECHANICAL APPLICATIONS

Job Name	Contractor
Job Location	Wholesaler
Engineer	Streamline[®] Rep

Product Description:

Streamline[®] Copper Tube for use in plumbing and mechanical applications. Available sizes (Type K, L, M, & DWV) ranging from ¼" to 8" in diameter. All tube shall be manufactured in the United States.

Material:

Streamline[®] Copper Tube is manufactured from UNS C12200 grade of copper.

Key Specifications:

Streamline[®] Copper Tube (Type K, L, M) shall conform to the NSF/ANSI 61 Annex G requirements and is manufactured to meet ASTM B88. Copper drainage tube (DWV) is made to meet ASTM B306. Copper refrigeration coils, ACR/Nitrogenized straight lengths and line sets are made to meet the chemical, mechanical, cleanliness and eddy current testing requirements of the applicable specifications of ASTM B280.

Installation:

Installations shall comply with the latest applicable building codes for the local jurisdiction. For detailed installation instructions, consult the Copper Development Association at copper.org.

References:

- | | |
|---------------------|------------------------------------------------------------|
| ASTM B75 | Seamless Copper Tube |
| C12200 | 99.9% Pure Copper (can be used for potable water) |
| NSF/ANSI 61 Annex G | Safe Drinking Water Act (third party certification) |
| ASTM B88 | Seamless Copper Water and Gas Tube (Type K, L, M) |
| ASTM B280 | Seamless Copper Tube for Air Conditioning and Refrigerants |
| ASTM B306 | Seamless Drainage Tube Code (DWV) |

Copper [tube or fitting] UNS C12200 has been evaluated by NSF International to NSF/ANSI 61 for use in drinking water supplies of pH 6.5 and above. Drinking water supplies that are less than pH 6.5 may require corrosion control to limit leaching of copper into the drinking water.



COPPER TUBE DATA

Streamline[®] Copper Tube sets the standard for quality, consistency and service in the plumbing industries. With a full line of copper tube products to support most all plumbing supply and DWV applications, Streamline[®] Copper Tube is available in all common types including Type K, Type L, Type M and DWV. Each piece of tube is incised marked and color coded for easy, long lasting identity. Manufactured in accordance with applicable standards, our ongoing commitment to quality continues to make Streamline[®] Copper Tube the preferred and specified brand of industry professionals.

TYPE K RATED WORKING PRESSURE (PSIG)

NOM. DIA.	WT/FT	FT/BN DL	150°F	200°F	300°F	400°F
1/4	0.145	500	913	860	842	537
3/8	0.269	500	960	904	885	565
1/2	0.344	500	758	713	698	446
5/8	0.418	200	626	589	577	368
3/4	0.641	200	724	682	668	426
1	0.839	100	557	524	513	327
1 1/4	1.04	100	452	425	416	266
1 1/2	1.36	100	420	396	387	247
2	2.06	—	370	348	341	217
2 1/2	2.93	—	338	319	312	199
3	4.00	—	328	308	302	193
3 1/2	5.12	—	311	293	286	183
4	6.51	—	306	288	282	180
5	9.67	—	293	276	270	172
6	13.90	—	295	277	271	173
8	25.90	—	314	295	289	184

TYPE L

1/4	0.126	500	775	729	714	456
3/8	0.198	500	662	623	610	389
1/2	0.285	500	613	577	565	361
5/8	0.362	200	537	505	495	316
3/4	0.455	200	495	466	456	291
1	0.655	100	420	395	387	247
1 1/4	0.884	100	373	351	344	219
1 1/2	1.14	100	347	327	320	204
2	1.75	—	309	291	285	182
2 1/2	2.48	—	285	269	263	168
3	3.33	—	270	254	248	159
3 1/2	4.29	—	258	243	238	152
4	5.38	—	249	235	230	147
5	7.61	—	229	215	211	135
6	10.2	—	213	201	196	125
8	19.3	—	230	216	212	135

Tables give computed allowable stress for annealed copper tube at indicated temperature.

COPPER TUBE DATA

TYPE M		RATED WORKING PRESSURE (PSIG)				
NOM. DIA.	WT/FT	FT/BNDL	150°F	200°F	300°F	400°F
3/8	0.145	500	485	456	447	285
1/2	0.204	500	420	395	387	247
3/4	0.328	200	346	326	319	204
1	0.465	100	286	270	264	169
1 1/4	0.682	100	287	271	265	169
1 1/2	0.94	100	282	265	259	166
2	1.46	-	254	239	234	149
2 1/2	2.03	-	233	219	215	137
3	2.68	-	215	203	199	127
3 1/2	3.58	-	214	202	197	126
4	4.66	-	213	201	197	126
5	6.66	-	198	186	182	116
6	8.92	-	186	175	171	109
8	16.5	-	195	183	180	115

TYPE DWV		RATED WORKING PRESSURE (PSIG)				
NOM. DIA.	WT/FT	FT/BNDL	150°F	200°F	300°F	400°F
1 1/4	0.65	100	280	269	258	165
1 1/2	0.809	100	249	240	230	147
2	1.07	-	185	178	170	109
3	1.69	-	135	130	125	80
4	2.87	-	127	122	117	75
5	4.43	-	129	124	119	76
6	6.1	-	126	121	116	74
8	10.6	-	124	119	114	73

Table give computed allowable stress for annealed copper tube at indicated temperature.

TECHNICAL DATA

Values of allowable internal working pressure for copper tube in service are based on the formula from ANSI B31, Standard Code for Pressure Piping:

$$P = \frac{2 S tm}{D_{max} - 0.8 tm}$$

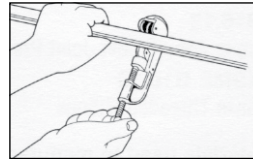
- P = Allowable Pressure
- S = Allowable stress
- T = Wall thickness
- D Max = Outside Diameter
- @ 150°F S = 5100 PSIG annealed
- @ 200°F S = 4800 PSIG annealed
- @ 300°F S = 4700 PSIG annealed
- @ 400°F S = 3000 PSIG annealed

All ratings listed for types K, L, M, DWV and refrigeration service tube in the preceding charts are calculated for tube in the annealed condition. These values should be used when soldering, brazing or welding is employed for joining components in a system. While the ratings for hard drawn tube are substantially higher, they should only be used for systems using properly designed flare or compression mechanical joints, since joining by any heating process might anneal (soften) the tube.

In designing a system, careful consideration should also be given to joint ratings as well as those of the components.

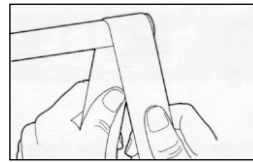
COPPER TUBE AND SOLDER TYPE FITTINGS

1. Cut tube square with the cutter or fine hack saw (32 tooth blade is recommended). Remove Burr.

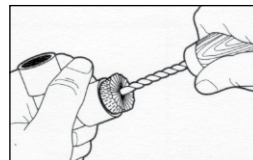


2. Clean outside end of copper tube thoroughly with sand cloth or sandpaper equal depth of fitting. Leave no dark spots.

3. Clean inside of fitting carefully to tube stop with wire brush. Note: Sand cloth or sandpaper may also be used.



4. Using a brush, apply light uniform coat of soldering flux to the outside of the tube and inside of the fitting.



5. Slip tube into fitting to tube stop. Turn tube back and forth once or twice to distribute flux evenly.

1. Cut tube to length & remove burr with file or scraper.

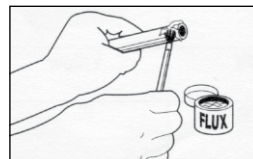
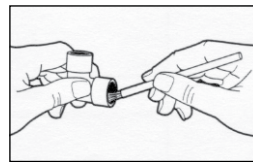
2. Clean outside of tube with sandpaper or sand cloth.

3. Clean inside of fitting with wire brush, sand cloth or sandpaper.

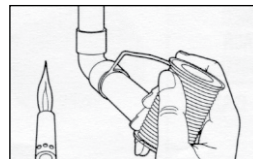
4. Apply flux thoroughly to inside of fitting.

5. Apply flux thoroughly to outside of tube - assemble tube and fitting.

6. Apply heat uniformly around the fitting with torch. When solder melts upon contact with heated fitting, the proper soldering temperature has been reached. Remove flame and feed solder slightly off center at the bottom of the joint. Proceed across the bottom of the fitting and up to the top center position. Return to the starting point, and then proceed up the incomplete side to the top, again, overlapping the solder metal. Wipe off surplus solder with a piece of cloth.



6. Apply heat with torch. When solder melts upon contact with heated fitting, the proper temp for soldering has been reached. Remove flame & feed solder to the joint at one or two points until a ring of solder appears at the end of the fitting.



CAUTION: No not overheat the joint or direct the flame into the face of the fitting cup. Overheating could burn the flux, which will destroy its effectiveness and the solder will not enter the joint properly.

1-1/4" and Larger Copper Pipe

COPPER FITTINGS FOR PLUMBING AND MECHANICAL APPLICATIONS

Job Name	Contractor
Job Location	Wholesaler
Engineer	Streamline[®] Rep

Product Description:

Streamline[®] Wrot Copper Pressure and DWV fittings for use in plumbing or mechanical applications. Available sizes ranging from 1/4" to 8" in diameter; all wrot copper solder joint fittings shall be manufactured in the United States. Product is designed to join ASTM B88 and ASTM B280 Seamless Copper Tube.

Material:

Streamline[®] Wrot Copper fittings shall be made from material in compliance with ASTM B75 and of UNS C12200 grade of copper.

Key Specifications:

Streamline[®] Wrot Copper, solder joint, pressure fittings shall conform to the NSF/ANSI 61 Annex G requirements. Wrot copper pressure fittings shall be manufactured to meet ASME B1.6.22 and MSS SP104. Wrot DWV copper fittings shall be made to meet ASME B1.6.29. All threaded fittings conform to ASME B1.20.1.

Installation:

Installations shall comply with the latest applicable building codes for the local jurisdiction. For detailed installation instructions, consult the Copper Development Association at copper.org.

References:

NSF/ANSI 61 Annex G	Safe Drinking Water Act (third party certification)
ASTM B75	Seamless Copper Tube
C12200	99.9% pure copper
ASME B1.6.22	Wrot Copper and Copper Alloy Solder Joint Pressure Fittings
MSS SP104	Wrot Copper Solder and Joint Pressure Fittings
ASME B1.6.29	Drain, Waste and Vent (DWV) Fittings
ASME B1.20.1	Threaded Fittings

Other Applicable Standards:

ASTM B88	Seamless Copper Water and Gas Tube (Types K, L, M)
ASTM B280	Seamless Copper Tube for Air Conditioning and Refrigeration

Copper [tube or fitting] UNS C122000 has been evaluated by NSF International to NSF/ANSI 61 for use in drinking water supplies of pH 6.5 and above. Drinking water supplies that are less than pH 6.5 may require corrosion control to limit leaching of copper into the drinking water.



COPPER FITTINGS - PLUMBING

SOLDER JOINT PRESSURE & DWV

ADAPTER

FEMALE WC-402

Part	Size	Box	Ctn	Wt
W 01207	1/8	100	1500	0.04
W 01215	1/4	50	750	0.04
W 01225	3/8	50	750	0.07
WB01231	1/2	50	500	0.10
WB01246	3/4	25	250	0.14
WB01263	1	10	100	0.25
W 01271	1-1/4	10	100	0.45
W 01279	1-1/2	10	100	0.53
W 01287	2	-	50	0.57
W 01296	2-1/2	-	25	1.22
W 01297	3	-	15	1.83

REDUCING

W 01204	1/8 x 1/2	100	300	0.10
W 01205	x 3/8	100	700	0.05
W 01206	x 1/4	100	900	0.04
W 01214	1/4 x 3/8	50	750	0.06
W 01216	x 1/8	100	1500	0.03
W 01223	3/8 x 3/4	50	300	0.16
W 01224	x 1/2	50	500	0.10
W 01226	x 1/4	50	750	0.06
WB01230	1/2 x 3/4	25	250	0.16
W 01232	x 3/8	50	500	0.07
W 01233	x 1/4	50	500	0.06
W 01238	5/8 x 3/4	50	500	0.15
W 01239	x 1/2	50	500	0.09
W 01245	3/4 x 1	25	250	0.27
W 01247	x 1/2	25	250	0.11
W 01261	1 x 1-1/4	10	100	0.28
W 01264	x 3/4	25	250	0.22
W 01265	x 1/2	20	200	0.25
W 01270	1-1/4 x 1-1/2	10	100	0.50
W 01272	x 1	10	100	0.33
W 01278	1-1/2 x 2	-	60	0.74
W 01280	x 1-1/4	5	50	0.39
W 01288	2 x 1-1/2	5	50	0.74

ADAPTER

FITTING WC-405

Part	Size	Box	Ctn	Wt
W 01525	3/8	50	750	0.05
W 01531	1/2	50	450	0.11
W 01546	3/4	25	250	0.17
W 01563	1	25	250	0.24
W 01571	1-1/4	10	100	0.40
W 01579	1-1/2	10	100	0.46
W 01587	2	-	50	0.65
W 01596	2-1/2	-	25	1.20

REDUCING

W 01514	1/4 x 3/8	50	750	0.06
W 01524	3/8 x 1/2	50	350	0.10
W 01526	x 1/4	50	750	0.06
W 01532	1/2 x 3/8	50	750	0.07
W 01547	3/4 x 1/2	50	500	0.11
W 01564	1 x 3/4	25	250	0.18

ADAPTER

MALE WC-401

Part	Size	Box	Ctn	Wt
W 01107	1/8	50	2400	0.02
W 01115	1/4	50	1200	0.03
W 01125	3/8	50	500	0.06
WB01131	1/2	50	500	0.06
WB01146	3/4	25	250	0.13
WB01163	1	10	100	0.24
W 01171	1-1/4	10	100	0.41
W 01179	1-1/2	10	100	0.51
W 01187	2	5	50	0.57
W 01196	2-1/2	-	20	1.26
W 01199	3	-	20	1.70
W 01150	4	-	16	3.71

REDUCING

W 01105	1/8 x 3/8	50	750	0.06
W 01106	x 1/4	50	1200	0.03

ADAPTER (CONT.)

REDUCING

W 01113	1/4 x 1/2	50	500	0.08
W 01114	x 3/8	50	750	0.06
W 01116	x 1/8	50	2000	0.02
W 01123	3/8 x 3/4	25	250	0.17
W 01124	x 1/2	50	500	0.09
W 01126	x 1/4	50	750	0.05
W 01129	1/2 x 1	15	150	0.30
WB01130	x 3/4	25	250	0.17
W 01132	x 3/8	50	500	0.07
W 01133	x 1/4	25	600	0.06
W 01138	5/8 x 3/4	25	250	0.14
W 01139	x 1/2	25	250	0.12
W 01145	3/4 x 1	10	100	0.29
W 01147	x 1/2	25	250	0.12
W 01161	1 x 1-1/2	10	100	0.48
W 01162	x 1-1/4	10	100	0.39
W 01164	x 3/4	10	100	0.17
W 01165	x 1/2	10	100	0.18
W 01170	1-1/4 x 1-1/2	10	100	0.48
W 01172	x 1	10	100	0.24
W 01173	x 3/4	10	100	0.21
W 01178	1-1/2 x 2	-	50	0.78
W 01180	x 1-1/4	10	100	0.37
W 01181	x 1	10	100	0.38
W 01188	2 x 1-1/2	-	50	0.64
W 01189	x 1-1/4	-	50	0.57
W 01197	2-1/2 x 2	-	20	0.98
W 01198	x 1-1/2	-	22	0.98

ADAPTER

FITTING WC-404

Part	Size	Box	Ctn	Wt
W 01425	3/8	50	750	0.05
W 01431	1/2	50	500	0.09
W 01446	3/4	50	500	0.15
W 01463	1	25	250	0.23
W 01471	1-1/4	10	100	0.41
W 01479	1-1/2	10	100	0.49
W 01487	2	-	50	0.76
W 01496	2-1/2	-	20	1.95

REDUCING

W 01432	1/2 x 3/8	50	750	0.06
W 01447	3/4 x 1/2	50	500	0.13
W 01464	1 x 3/4	25	250	0.19

AIR CHAMBER

WA-515

Part	Size	Box	Ctn	Wt
W 06000	1/2 x 6	-	100	0.22
W 06001	x 12	-	50	0.42
W 06002	3/4 x 12	-	72	0.41

BUSHING

FLUSH WC-106

Part	Size	Box	Ctn	Wt
W 01706	1/4 x 1/8	100	4000	0.01
W 01712	3/8 x 1/4	100	3400	0.01
W 01714	x 1/8	100	2400	0.02
W 01715	1/2 x 3/8	100	1500	0.02
W 01717	x 1/4	100	1500	0.04
W 01720	5/8 x 1/2	50	750	0.03
W 01721	x 3/8	50	750	0.06
W 01722	x 1/4	50	750	0.08
W 01725	3/4 x 5/8	50	500	0.04
W 01726	x 1/2	50	500	0.07
W 01727	x 3/8	50	500	0.11
W 01737	1 x 3/4	50	500	0.12
W 01738	x 5/8	50	500	0.18
W 01739	x 1/2	25	250	0.22
W 01743	1-1/4 x 1	10	200	0.16
W 01745	x 3/4	10	200	0.30
W 01750	1-1/2 x 1-1/4	10	100	0.22
W 01751	x 1	10	100	0.41
W 01758	2 x 1-1/2	10	100	0.68

BUSHING (CONT.)

W 01759	x 1-1/4	5	50	0.94
W 01767	2-1/2 x 2	-	50	0.92

BUSHING

FLUSH WC-417 (BRASS)

Part	Size	Box	Ctn	Wt
A 07813	1/2 x 1/4	50	1200	0.02
A 07812	x 1/8	100	1600	0.04
A 07814	3/4 x 3/8	50	450	0.08
A 07815	1 x 1/2	50	300	0.17
A 07816	1-1/4 x 3/4	10	160	0.25
A 07817	1-1/2 x 1	10	90	0.34
A 07819	2 x 1-1/2	10	90	0.48

CAP

WC-415

Part	Size	Box	Ctn	Wt
W 07002	1/8	50	2000	-
W 07004	1/4	50	2000	0.01
W 07006	3/8	50	1000	0.01
WB07007	1/2	50	1000	0.02
W 07008	5/8	50	2000	0.03
WB07009	3/4	25	1000	0.04
WB07011	1	10	500	0.08
W 07012	1-1/4	25	250	0.11
W 07013	1-1/2	25	250	0.18
W 07014	2	-	100	0.30
W 07015	2-1/2	-	50	0.48
W 07016	3	-	50	0.73
W 07017	3-1/2	-	25	1.15
W 07018	4	-	20	1.50

COUPLING

NO STOP WC-400NS

Part	Size	Box	Ctn	Wt
W 01900	1/8	100	4000	-
W 01901	1/4	50	2000	0.01
W 01902	3/8	50	1700	0.01
W 01903	1/2	100	1000	0.03
W 01904	5/8	25	375	0.04
W 01905	3/4	50	500	0.06
W 01906	1	25	250	0.11
W 01907	1-1/4	25	250	0.15
W 01908	1-1/2	10	100	0.25
W 01909	2	-	75	0.40
W 01910	2-1/2	-	50	0.66
W 01911	3	-	25	1.03
W 01913	4	-	15	2.15

COUPLING

ROLLED STOP WC-400

Part	Size	Box	Ctn	Wt
W 01003	1/8	100	4000	-
W 01009	1/4	50	2000	0.01
W 01017	3/8	50	1700	0.01
WB01022	1/2	50	1000	0.03
W 01028	5/8	50	500	0.05
WB01034	3/4	25	500	0.06
WB01047	1	10	250	0.11
W 01055	1-1/4	25	250	0.15
W 01063	1-1/2	10	100	0.21
W 01072	2	-	75	0.40
W 01082	2-1/2	-	50	0.66
W 01092	3	-	25	1.03
W 1				

COUPLING

STAKED STOP WC-400S

Part	Size	Box	Ctn	Wt
W 10141	1/8	100	3400	-
W 10143	1/4	50	2000	0.01
W 10144	3/8	50	1700	0.01
W 10145	1/2	100	1000	0.03
W 10157	5/8	25	500	0.04
W 10146	3/4	50	500	0.06
W 10147	1	25	250	0.11
W 10148	1-1/4	25	250	0.15
W 10149	1-1/2	10	100	0.22
W 10150	2	-	75	0.41
W 10151	2-1/2	-	50	0.66
W 10152	3	-	25	1.02
W 10153	3-1/2	-	20	1.03
W 10154	4	-	15	2.15
W 10155	5	-	8	3.34
W 10156	6	-	3	4.61
W 10130	8	-	-	14.13

COUPLING

REDUCING WC-400R

Part	Size	Box	Ctn	Wt
W 01011	1/4 x 1/8	50	2000	0.01
W 01019	3/8 x 1/4	50	1700	0.01
W 01021	x 1/8	50	1200	0.02
W 01023	1/2 x 3/8	100	1000	0.03
W 01025	x 1/4	100	1000	0.03
W 01027	x 1/8	100	1000	0.03
W 01029	5/8 x 1/2	100	600	0.05
W 01030	x 3/8	100	600	0.04
W 01031	x 1/4	100	600	0.04
W 01035	3/4 x 5/8	100	1000	0.06
WB01036	x 1/2	25	500	0.08
W 01037	x 3/8	50	500	0.06
W 01038	x 1/4	50	500	0.06
W 01049	1 x 3/4	25	250	0.13
W 01050	x 5/8	25	250	0.11
W 01051	x 1/2	25	250	0.11
W 01052	x 3/8	25	250	0.11
W 01056	1-1/4 x 1	10	100	0.20
W 01058	x 3/4	10	100	0.17
W 01060	x 1/2	10	100	0.17
W 01064	1-1/2 x 1-1/4	10	100	0.23
W 01065	x 1	10	100	0.23
W 01067	x 3/4	10	100	0.24
W 01069	x 1/2	10	100	0.22
W 01073	2 x 1-1/2	-	100	0.43
W 01074	x 1-1/4	-	100	0.43
W 01075	x 1	-	100	0.46
W 01077	x 3/4	-	100	0.40
W 01079	x 1/2	-	75	0.41
W 01083	2-1/2 x 2	-	50	0.65
W 01084	x 1-1/2	-	50	0.75
W 01085	x 1-1/4	-	50	0.70
W 01086	x 1	-	50	0.71
W 01093	3 x 2-1/2	-	25	1.06
W 01094	x 2	-	25	1.10
W 01095	x 1-1/2	-	25	1.01
W 10101	3-1/2 x 3	-	25	1.22
W 10108	4 x 3-1/2	-	20	1.87
W 10109	x 3	-	20	0.76
W 10110	x 2-1/2	-	15	1.88
W 10111	x 2	-	20	1.97
W 10116	5 x 4	-	1	3.31
W 10123	6 x 4	-	1	4.82
W 10124	x 3	-	1	4.85

COUPLING

CROSS OVER WC-412

Part	Size	Box	Ctn	Wt
A 02535	1/2	5	100	0.12
A 02583	3/4	5	50	0.26

45° ELBOW

WE-504

Part	Size	Box	Ctn	Wt
W 03005	1/8	50	2000	0.01
W 03012	1/4	50	2800	0.01
W 03021	3/8	50	850	0.03
WB03026	1/2	50	500	0.04
W 03030	5/8	50	500	0.06
WB03034	3/4	25	250	0.09
WB03044	1	10	200	0.16
W 03050	1-1/4	10	100	0.25
W 03055	1-1/2	10	100	0.36
W 03059	2	10	50	0.60

45° ELBOW (CONT.)

W 03063	2-1/2	5	25	1.00
W 03067	3	2	20	1.53
W 03070	3-1/2	2	10	2.81
W 03073	4	-	5	3.14
W 03074	5	-	1	6.56
W 03075	6	-	1	10.64

45° ELBOW

STREET WE-505

Part	Size	Box	Ctn	Wt
W 03312	1/4	100	3400	0.01
W 03321	3/8	100	1500	0.03
WB03326	1/2	50	500	0.03
W 03330	5/8	50	500	0.06
WB03334	3/4	25	250	0.09
W 03344	1	25	250	0.15
W 03350	1-1/4	10	100	0.24
W 03355	1-1/2	10	100	0.33
W 03359	2	5	50	0.61
W 03363	2-1/2	2	20	1.05
W 03368	3	2	10	1.52
W 03373	4	-	5	3.11

45° ELBOW

WE-507

Part	Size	Box	Ctn	Wt
W 03621	3/8	50	1700	0.02
W 03626	1/2	50	750	0.04
W 03634	3/4	25	250	0.10
W 03644	1	10	100	0.18

90° ELBOW

SHORT RADIUS WE-500

Part	Size	Box	Ctn	Wt
W 02003	1/8	50	2000	0.01
W 02009	1/4	50	1700	0.02
W 01617	3/8	50	750	0.03
WB01622	1/2	50	500	0.04
W 02028	5/8	50	500	0.08
WB01634	3/4	25	250	0.09
WB01647	1	10	100	0.18
W 02084	1-1/4	10	100	0.30
W 02085	1-1/2	10	100	0.42
W 02086	2	10	50	0.76
W 02087	2-1/2	5	25	1.19
W 02088	3	5	25	1.88
W 02089	3-1/2	2	10	2.77
W 02090	4	2	10	4.00
W 02096	5	-	1	8.59
W 02097	6	-	1	13.73
W 02099	8	-	1	27.00

REDUCING

W 02011	1/4 x 1/8	50	750	0.02
W 02019	3/8 x 1/4	50	750	0.03
W 02023	1/2 x 3/8	50	500	0.05
W 02025	x 1/4	50	500	0.05
W 02029	5/8 x 1/2	50	500	0.06
W 02030	x 3/8	50	500	0.07
W 02035	3/4 x 5/8	50	500	0.11
W 02036	x 1/2	50	500	0.11
W 02037	x 3/8	50	500	0.11
W 02049	1 x 3/4	25	250	0.17
W 02050	x 5/8	25	250	0.16
W 02051	x 1/2	25	250	0.18
W 02052	x 3/8	25	150	0.20
W 02056	1-1/4 x 1	20	200	0.32
W 02077	1-1/2 x 1-1/4	5	100	0.33
W 02078	2 x 1-1/2	5	50	0.60

90° ELBOW

LONG RADIUS WE-500L

Part	Size	Box	Ctn	Wt
W 02715	1/8	50	2000	0.01
W 02716	1/4	50	1700	0.02
W 02717	3/8	50	500	0.04
W 02722	1/2	50	500	0.06
W 02728	5/8	50	500	0.09

90° ELBOW (CONT.)

W 02734	3/4	25	250	0.13
W 02747	1	10	100	0.27
W 02055	1-1/4	10	100	0.42
W 02063	1-1/2	5	50	0.60
W 02072	2	5	25	1.23
W 02082	2-1/2	5	25	2.05
W 02092	3	2	10	3.13
W 02093	3-1/2	1	5	5.53
W 02095	4	-	1	7.98

REDUCING

W 02711	1/4 x 1/8	50	3000	0.01
W 02723	1/2 x 3/8	50	1000	0.04
W 02725	x 1/4	50	1000	0.03
W 02735	3/4 x 5/8	25	250	0.12
W 02736	x 1/2	50	500	0.09
W 02749	1 x 3/4	10	100	0.17
W 02756	1-1/4 x 1	10	100	0.31
W 02058	x 3/4	10	100	0.37
W 02060	x 1/2	10	100	0.37
W 02064	1-1/2 x 1-1/4	5	50	0.44
W 02065	x 1	5	50	0.52
W 02067	x 3/4	5	50	0.51
W 02073	2 x 1-1/2	2	20	0.98
W 02074	x 1-1/4	2	20	0.94
W 02075	x 1	2	20	0.97

90° ELBOW

STREET SHORT RADIUS WE-503

Part	Size	Box	Ctn	Wt
W 02305	1/8	50	2000	0.01
W 02312	1/4	50	1700	0.02
W 02321	3/8	50	750	0.03
WB01652	1/2	50	500	0.04
W 02330	5/8	25	250	0.09
WB01654	3/4	25	250	0.10
W 02334	3/4	25	250	0.11
WB02344	1	10	100	0.22
W 02384	1-1/4	25	125	0.29
W 02385	1-1/2	10	100	0.44
W 02386	2	10	50	0.77
W 02387	2-1/2	5	25	1.23
W 02388	3	2	20	1.94
W 02389	3-1/2	1	10	2.78
W 02390	4	2	10	4.03

90° ELBOW

STREET LONG RADIUS WE-503L

Part	Size	Box	Ctn	Wt
W 02809	1/4	50	1700	0.02
W 02817	3/8	50	500	0.04
W 02822	1/2	50	500	0.06
W 02828	5/8	25	250	0.09
W 02834	3/4	25	250	0.13
W 02847	1	10	100	0.26
W 02350	1-1/4	10	100	0.42
W 02355	1-1/2	5	50	0.60
W 02359	2	5	25	1.23
W 02363	2-1/2	5	25	2.08
W 02368	3	2	10	3.12
W 02393	3-1/2	1	5	5.52
W 02395	4	-	1	8.07

90° ELBOW

SHORT RADIUS WE-506

Part	Size	Box	Ctn	Wt
W 02612	1/4	50	2800	0.02
W 02621	3/8	50	750	0.03
W 02626	1/2	50	500	0.05
W 02634	3/4	25	250	0.11
W 02644	1	10	100	0.22
W 02684	1-1/4	10	100	0.31
W 02685	1-1/2	5	50	0.43
W 02686	2	1	10	0.79
W 02687	2-1/2	1	10	1.25
W 02688	3	1	10	2.08
W 02689	3-1/2	1	10	2.63
W 02690	4	1	5	3.88

90° ELBOW (CONT.)

LONG RADIUS WE-506L **FTG x FTG**

Part	Size	Box	Ctn	Wt
W 02650	1-1/4	5	50	0.44
W 02655	1-1/2	5	50	0.63
W 02659	2	1	10	1.23

FITTING REDUCER

WC-403 **FTG x C**

Part	Size	Box	Ctn	Wt
W 01306	1/4 x 1/8	50	2000	0.01
W 01312	3/8 x 1/4	50	2000	0.02
W 01314	x 1/8	50	2800	0.01
W 01315	1/2 x 3/8	50	750	0.03
W 01317	x 1/4	50	1700	0.02
W 01320	5/8 x 1/2	100	1000	0.04
W 01321	x 3/8	100	900	0.04
W 01322	x 1/4	100	900	0.04
W 01325	3/4 x 5/8	50	500	0.06
WB01326	x 1/2	25	500	0.06
W 01327	x 3/8	50	500	0.06
W 01337	1 x 3/4	25	250	0.11
W 01338	x 5/8	25	250	0.10
W 01339	x 1/2	25	250	0.10
W 01340	x 3/8	20	200	0.10
W 01343	1-1/4 x 1	10	100	0.17
W 01345	x 3/4	10	100	0.17
W 01347	x 1/2	10	100	0.16
W 01350	1-1/2 x 1-1/4	10	100	0.23
W 01351	x 1	10	100	0.24
W 01353	x 3/4	10	100	0.23
W 01355	x 1/2	10	100	0.22
W 01358	2 x 1-1/2	-	100	0.44
W 01359	x 1-1/4	-	100	0.43
W 01360	x 1	-	100	0.45
W 01362	x 3/4	-	100	0.43
W 01364	x 1/2	-	100	0.42
W 01367	2-1/2 x 2	-	50	0.62
W 01368	x 1-1/2	-	50	0.57
W 01369	x 1-1/4	-	50	0.62
W 01370	x 1	-	50	0.63
W 01376	3 x 2-1/2	-	25	1.00
W 01377	x 2	-	25	0.89
W 01378	x 1-1/2	-	50	0.92
W 01379	x 1-1/4	-	50	1.01
W 01381	3-1/2 x 3	-	20	1.28
W 01382	x 2-1/2	-	20	1.37
W 01383	x 2	-	20	1.47
W 01386	4 x 3-1/2	-	20	1.74
W 01387	x 3	-	15	1.77
W 01388	x 2-1/2	-	15	1.83
W 01389	x 2	-	15	1.86
W 01390	5 x 4	-	1	3.24
W 01391	x 3	-	1	2.76
W 01393	x 2	-	1	2.66
W 01394	6 x 5	-	1	4.80
W 01395	x 4	-	1	4.32
W 01396	x 3	-	1	4.49

HANGER

HI-EAR W-124 **C**

Part	Size	Box	Ctn	Wt
A 03167	1/2	100	1000	0.03
A 03168	3/4	25	500	0.04
A 03171	1	25	250	0.04

PLUG

FITTING WC-416 (SIZES 1/8 THRU 1 1/2 BRASS ROD) **FTG**

Part	Size	Box	Ctn	Wt
A 01402	1/8	50	500	0.01
A 01422	1/4	100	4000	0.01
A 01392	3/8	50	2000	0.02
A 01504	1/2	50	1200	0.03
A 01529	3/4	50	600	0.07
A 01556	1	25	375	0.12
A 01590	1-1/4	15	180	0.20
A 01628	1-1/2	10	120	0.28

RETURN BEND

WE-512 **C x C**

Part	Size	Box	Ctn	Wt
W 06025	1/4 x 4-1/2	25	150	0.10
W 06020	x 1-1/2	25	850	0.02
W 06048	3/8 x 6	-	100	0.21
W 06045	x 4	-	200	0.14
W 06041	x 3	25	250	0.11
W 06036	x 2	50	300	0.06
W 06035	x 1-29/32	50	300	0.08
W 06032	x 1-1/2	50	500	0.06
W 06069	1/2 x 6	5	30	0.30
W 06062	x 3-3/8	10	100	0.18
W 06060	x 3	25	150	0.16
W 06058	x 2-1/2	25	250	0.14
W 06056	x 2-1/4	25	250	0.13
W 06053	x 1-7/8	25	250	0.11
W 06051	x 1-9/16	25	250	0.10
W 06084	5/8 x 4	-	120	0.25
W 06081	x 3-3/8	10	90	0.24
W 06077	x 2-1/2	10	100	0.17
W 06074	x 2-1/8	10	100	0.16
W 06073	x 2	10	100	0.15
W 06099	3/4 x 12	-	15	0.88
W 06095	x 3-3/8	10	100	0.29
W 06092	x 2-1/2	10	100	0.23
W 60111	1 x 3-1/4	5	50	0.49
W 60110	x 3	5	50	0.47
W 60121	1-1/4 x 3-3/4	5	50	0.65
W 60131	1-1/2 x 4-1/2	5	25	1.00
W 60140	2 x 5-1/2	5	25	1.92

P-TRAP

SUCTION LINE WE-554P **C x C**

Part	Size	Box	Ctn	Wt
W 60999	1/2	10	50	0.38
W 61008	5/8	10	50	0.51
W 61000	3/4	5	25	0.63
W 61001	1	3	15	0.87
W 61002	1-1/4	4	20	1.16
W 61003	1-1/2	4	4	2.28
W 61009	2	-	3	3.87

TEE

WT-600 **C x C x C**

Part	Size	Box	Ctn	Wt
W 40306	1/8	100	2400	0.01
W 04000	1/4	50	1700	0.02
W 04001	3/8	50	500	0.04
WB04006	1/2	50	500	0.07
W 04017	5/8	25	250	0.12
WB04031	3/4	25	200	0.16
WB04048	1	10	100	0.29
W 04068	1-1/4	5	50	0.42
W 04084	1-1/2	5	50	0.60
W 40102	2	5	25	1.14
W 40123	2-1/2	2	20	1.72
W 40152	3	2	10	2.77
W 40190	3-1/2	1	5	5.66
W 40200	4	1	5	5.99
W 40400	5	-	1	12.38
W 40500	6	-	1	20.85
W 40525	8	-	1	36.81

REDUCING

W 40368	1/8 x 1/8	1/4	50	750	0.03
W 04016	1/4 x 1/4	1/2	50	500	0.08
W 04005	x 3/8	50	500	0.04	
W 40324	x 1/8	50	1700	0.02	
W 40330	x 1/8 x 1/4	50	500	0.02	
W 40332	x 1/8	50	1700	0.02	
W 04015	3/8 x 3/8	1/2	50	500	0.09
W 04002	x 1/4	50	500	0.04	
W 40350	x 1/8	50	500	0.04	
W 04003	x 1/4 x 3/8	50	500	0.05	
W 04004	x 1/4	50	500	0.04	
W 40358	x 1/8	50	750	0.04	
W 40363	x 1/8 x 3/8	50	750	0.05	
W 40364	x 1/4	50	750	0.04	
W 40366	x 1/8	50	450	0.05	
W 04067	1/2 x 1/2	1	10	100	0.35
W 04047	x 3/4	25	250	0.11	

TEE (CONT.)

REDUCING					
W 04029	x 5/8	25	250	0.10	
W 04007	x 3/8	50	500	0.08	
W 04008	x 1/4	50	500	0.06	
W 04014	x 1/8	50	500	0.08	
W 04009	x 3/8 x 1/2	50	500	0.09	
W 04010	x 3/8	50	500	0.08	
W 04011	x 1/4	50	500	0.08	
W 04012	x 1/4 x 1/2	50	500	0.09	
W 40367	x 3/8	50	500	0.08	
W 04013	x 1/4	50	500	0.09	
W 04046	5/8 x 5/8 x 3/4	25	250	0.15	
W 04018	x 1/2	25	250	0.10	
W 04019	x 3/8	25	250	0.10	
W 04020	x 1/4	25	250	0.10	
W 04021	x 1/2 x 5/8	25	225	0.13	
W 04022	x 1/2	25	250	0.11	
W 04023	x 3/8	25	225	0.11	
W 04025	x 3/8 x 5/8	25	250	0.15	
W 04026	x 1/2	25	225	0.14	
W 04027	x 3/8	25	250	0.11	
W 04065	3/4 x 3/4 x 1	10	100	0.22	
W 04032	x 5/8	25	250	0.17	
WB04033	x 1/2	25	250	0.12	
W 04034	x 3/8	25	250	0.11	
W 04035	x 1/4	25	250	0.11	
W 04036	x 5/8 x 3/4	25	250	0.19	
W 04037	x 5/8	25	250	0.17	
WB04041	x 1/2 x 3/4	25	250	0.16	
W 04042	x 5/8	25	150	0.17	
WB04043	x 1/2	25	250	0.13	
W 04044	x 3/8	25	250	0.12	
W 04045	x 1/4	25	225	0.15	
W 40230	x 3/8 x 3/4	25	250	0.19	
W 40231	x 1/2	25	250	0.17	
W 40232	x 3/8	25	250	0.12	
W 40101	1 x 1 x 1-1/2	5	50	0.47	
W 04082	x 1-1/4	5	50	0.31	
WB04049	x 3/4	10	100	0.24	
W 04050	x 5/8	10	100	0.27	
WB04051	x 1/2	10	100	0.21	
W 04052	x 3/8	10	100	0.19	
W 04055	1x3/4x1	10	100	0.30	
W 04056	x 3/4	10	100	0.25	
W 04057	x 5/8	10	90	0.43	
W 04058	x 1/2	10	100	0.23	
W 04059	x 3/8	10	100	0.21	
W 40233	x 5/8 x 1	10	100	0.33	
W 40234	x 3/4	10	90	0.30	
W 40235	x 5/8	10	100	0.31	
W 40236	x 1/2	10	90	0.35	
W 4061	x 1/2 x 1	10	100	0.30	
W 04062	x 3/4	10	100	0.28	
W 04063	x 1/2	10	100	0.21	
W 40122	1-1/4x1-1/4	x2	2	20	0.89
W 40100	x 1-1/2	5	50	0.49	
W 04069	x 1	5	50	0.41	
W 04070	x 3/4	5	50	0.35	
W 04071	x 1/2	5	50	0.32	
W 04072	x 3/8	5	50	0.29	
W 04073	x 1 x 1-1/4	5	50	0.48	
W 04074	x 1	5	50	0.46	
W 04075	x 3/4	5	50	0.38	
W 04076	x 1/2	5	50	0.36	
W 04078	x 3/4 x 1-1/4	5	50	0.45	
W 04079	x 1	5	50	0.46	
W 04080	x 3/4	5	50	0.37	
W 04081	x 1/2	5	50	0.34	
W 04083	1/2 x 1-1/4	5	50	0.57	
W 40121	1-1/2x1-1/2x2	2	20	1.21	
W 04085	x 1-1/4	5	50	0.57	
W 04086	x 1	5	50	0.52	
W 04087	x 3/4	5	50	0.47	
W 04088	x 1/2	5	50	0.42	
W 04089	x 3/8	5	50	0.41	
W 04090	x1-1/4x1-1/2	5	50	0.68	
W 04091	x 1-1/4	5	50	0.69	
W 04092	x 1	5	50	0.57	
W 04093	x 3/4	5			

TEE (CONT.)

REDUCING					
W 40238	x 3/4 x 3/4	5	50	0.55	
W 40243	x 1/2	5	50	0.47	
W 40244	x 1/2 x 1-1/2	5	50	0.66	
W 40153	2 x 2 x 3	1	10	2.55	
W 40144	x 2-1/2	1	10	1.46	
W 40103	x 1-1/2	5	50	0.99	
W 40104	x 1-1/4	5	50	0.85	
W 40105	x 1	5	50	0.88	
W 40106	x 3/4	5	50	0.83	
W 40107	x 1/2	5	50	0.67	
W 40108	x 3/8	2	20	0.68	
W 40109	x 1-1/2 x 2	2	20	1.31	
W 40110	x 1-1/2	2	20	1.15	
W 40111	x 1-1/4	2	20	0.86	
W 40112	x 1	2	20	1.06	
W 40113	x 3/4	2	20	0.75	
W 40114	x 1/2	5	50	0.77	
W 40115	x 1-1/4 x 2	2	20	1.30	
W 40116	x 1-1/2	2	20	1.14	
W 40117	x 1-1/4	2	20	1.09	
W 40118	x 1	2	20	0.95	
W 40119	x 3/4	5	50	0.76	
W 40120	x 1/2	5	20	0.78	
W 40245	x 1 x 2	5	25	1.64	
W 40247	x 1	5	50	1.06	
W 40248	x 3/4 x 2	5	25	1.71	
W 40249	x 1/2 x 2	5	25	1.66	
W 40124	2-1/2 2-1/2 x 2	2	20	1.59	
W 40125	x 1-1/2	2	20	1.49	
W 40126	x 1-1/4	2	20	1.87	
W 40127	x 1	2	20	1.83	
W 40128	x 3/4	1	10	1.83	
W 40129	x 1/2	1	10	2.05	
W 40130	x 2 x 2-1/2	4	20	2.30	
W 40131	x 2	2	20	1.84	
W 40132	x 1-1/2	4	20	2.09	
W 40133	x 1-1/4	4	20	2.12	
W 40134	x 1	4	20	2.10	
W 40135	x 3/4	4	20	2.06	
W 40136	x 1/2	4	20	2.20	
W 40137	2-1/2x1-1/2x2-1/2	4	20	2.32	
W 40138	x 2	4	20	1.84	
W 40139	x 1-1/2	4	20	2.11	
W 40140	x 1-1/4	4	20	2.17	
W 40141	x 1	4	20	1.83	
W 40142	x 3/4	4	20	2.36	
W 40143	x 1/2	4	20	2.36	
W 40220	x 1-1/4 x 2-1/2	4	20	2.35	
W 40250	x 2	4	20	1.82	
W 40251	x 1-1/2	4	20	2.47	
W 40252	x 1-1/4	4	20	1.96	
W 40253	x 1	4	20	2.47	
W 40254	x 3/4	4	20	2.18	
W 40255	x 1/2	4	20	2.47	
W 40221	x 1 x 2-1/2	4	20	2.39	
W 40256	x 2	4	20	1.97	
W 40257	x 1-1/2	4	20	2.15	
W 40258	x 1-1/4	4	20	2.04	
W 40259	x 1	4	20	2.27	
W 40222	x 3/4 x 2-1/2	4	20	2.41	
W 40151	3 x 3 x 2-1/2	2	10	2.45	
W 40150	x 2	2	20	2.30	
W 40149	x 1-1/2	2	10	2.18	
W 40148	x 1-1/4	2	10	2.38	
W 40147	x 1	2	20	1.96	
W 40146	x 3/4	2	20	1.49	
W 40145	x 1/2	2	20	1.38	
W 40159	3 x 2-1/2 x 3	2	10	2.96	
W 40158	x 2-1/2	2	10	4.52	
W 40157	x 2	2	10	2.68	
W 40156	x 1-1/2	2	10	2.63	
W 40155	x 1-1/4	2	10	2.62	
W 40154	x 1	2	20	2.02	
W 40167	x 2 x 3	2	10	3.07	
W 40165	x 2-1/2	2	10	4.64	
W 40164	x 2	2	10	2.75	
W 40163	x 1-1/2	2	10	2.57	
W 40162	x 1-1/4	2	10	2.61	
W 40161	x 1	2	20	2.04	
W 40174	x 1-1/2 x 3	2	10	2.97	
W 40181	x 1-1/4 x 3	2	10	3.14	
W 40178	x 1 x 3	2	10	3.02	
W 40179	x 3/4 x 3	2	10	3.03	
W 40198	4 x 4 x 3	1	5	4.94	
W 40197	x 2-1/2	1	5	5.16	
W 40196	x 2	1	10	4.52	
W 40195	x 1-1/2	1	10	4.47	


TEE (CONT.)

REDUCING					
W 40194	x 1-1/4	1	10	4.55	
W 40193	x 1	1	10	3.05	
W 40192	x 3/4	1	10	2.89	
W 40191	x 1/2	1	10	2.89	
W 40208	x 3 x 4	1	5	8.66	
W 40206	x 3	1	5	5.12	
W 40205	x 2-1/2	1	5	5.61	
W 40204	x 2	1	5	4.76	
W 40212	x 2-1/2 x 4	1	5	7.79	
W 40216	x 2 x 4	1	5	8.95	
W 40215	x 1-1/2 x 4	1	5	8.51	
W 40214	x 1-1/4 x 4	1	5	8.57	
W 40213	x 1 x 4	1	5	9.33	
W 40401	5 x 5 x 4	-	1	6.95	
W 40402	x 3	-	1	6.25	
W 40404	x 2	-	1	5.05	
W 40520	6 x 4 x 4	-	1	12.52	
W 40502	x 6 x 4	-	1	11.00	
W 40503	x 3	-	1	11.00	
W 40504	x 2-1/2	-	1	11.10	
W 40505	x 2	-	1	9.54	
W 40526	8 x 8 x 4	-	1	22.26	

TEE

FITTING
WT-600F

C x FTG x C




Part	Size	Box	Ctn	Wt
W 04106	1/2	50	300	0.10
W 04131	3/4	25	150	0.19

UNION

WC-407


C x C



Part	Size	Box	Ctn	Wt
W 08001	1/4	25	250	0.12
W 08002	3/8	25	250	0.11
W 08003	1/2	25	250	0.16
W 08004	3/4	25	150	0.37
W 08005	1	10	100	0.52

COPPER TUBE STRAP

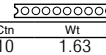
2-HOLE
WS-1100



Part	Size	Box	Ctn	Wt
A 01203	1/8	100	4,000	0.01
A 01278	1/4	100	5,600	0.01
A 01366	3/8	100	3,400	0.01
A 02529	1/2	100	1,500	0.01
A 01467	5/8	100	2,000	0.01
A 02574	3/4	50	750	0.01
A 02614	1	50	750	0.02
A 02650	1-1/4	50	500	0.04
A 02675	1-1/2	50	500	0.05
A 02708	2	50	500	0.06

PERFORATED COPPER STRAP

WS-1101




Part	Size	Box	Ctn	Wt
A 01211	25 Ft. Roll	1	10	1.63

SOLDER JOINT DWV FITTINGS

ADAPTER

TRAP
DW-724F

FTG x SJ




Part	Size	Box	Ctn	Wt
A 11564	1-1/2x1-1/2 OD	10	100	0.28
REDUCING				
A 11566	1-1/2x1-1/4 OD	10	100	0.26

ADAPTER

TRAP
DW-724

C x SJ




Part	Size	Box	Ctn	Wt
A 11355	1-1/4x1-1/4 OD	25	250	0.22
A 11356	1-1/2x-1/2 OD	10	200	0.33
REDUCING				
A 11383	1-1/2x1-1/4 OD	10	200	0.40

ADAPTER

TRAP
DW-757

F x SJ




Part	Size	Box	Ctn	Wt
A 11409	1-1/4x1-1/4 OD	10	100	0.34
A 11410	1-1/2x1-1/2 OD	10	100	0.40
REDUCING				
A 11411	1-1/2x1-1/4 OD	10	100	0.40

ADAPTER

TRAP
DW-756

M x SJ




Part	Size	Box	Ctn	Wt
A 11405	1-1/4x1-1/4 OD	10	100	0.42
A 11406	1-1/2x1-1/2 OD	10	100	0.52
REDUCING				
A 11407	1-1/2x1-1/4 OD	10	100	0.53

ADAPTER

SOIL PIPE
DW-733

C x SPIGOT




Part	Size	Box	Ctn	Wt
W 07122	2	5	100	0.43
W 07133	3	5	40	1.12
REDUCING				
W 07112	x 2	5	50	0.61

ADAPTER

FEMALE
DW-753

C x F




Part	Size	Box	Ctn	Wt
W 07221	1-1/2	10	100	0.25
W 07222	2	10	100	0.41

ADAPTER

DW-754

FTG x F




Part	Size	Box	Ctn	Wt
W 07240	1-1/4	10	100	0.19

ADAPTER

DW-732

C x M




Part	Size	Box	Ctn	Wt
A 07012	1-1/4	25	250	0.35
A 07054	1-1/2	10	100	0.44
A 07094	2	10	100	0.52
REDUCING				
W 07235	1-1/4 x 1-1/2	10	100	0.37

BUSHING

EXTENDED
DW-742

FTG x C




Part	Size	Box	Ctn	Wt
W 07350	1-1/2 x 1-1/4	25	250	0.11
W 07358	2 x 1-1/2	-	100	0.22
W 07359	x 1-1/4	-	100	0.18
W 07377	3 x 2	-	50	0.47
W 07378	x 1-1/2	-	50	0.44
W 07379	x 1-1/4	-	50	0.50
W 07387	4 x 3	-	25	0.89
W 07389	x 2	-	25	1.03

CLOSET FLANGE

DW-734

C x CLOSET




Part	Size	Box	Ctn	Wt
W 07834	3 x 4	5	50	0.83
W 07844	4 x 4	5	40	0.67

COUPLING

DW-741

C x C



Part	Size	Box	Ctn	Wt
W 07055	1-1/4	25	150	0.09
W 07063	1-1/2	25	250	0.11


COUPLING (CONT.)

W 07072	2	—	100	0.13
W 07092	3	—	50	0.47
W 70107	4	—	25	1.03


REDUCING

W 07073	2 x 1-1/2	—	100	0.17
W 07074	x 1-1/4	—	100	0.18
W 07094	3 x 2	—	50	0.52
W 07095	x 1-1/2	—	50	0.52
W 07096	x 1-1/4	—	50	0.70
W 70109	4 x 3	—	25	0.93
W 70106	x 2	—	25	1.38


REPAIR COUPLING

DW-741NS	C x C				
Part	Size	Box	Ctn	Wt	
W 07907	1-1/4	25	225	0.07	
W 07908	1-1/2	25	250	0.11	
W 07909	2	—	75	0.19	
W 07911	3	—	50	0.34	


45° ELBOW

DW-204	C x C				
Part	Size	Box	Ctn	Wt	
W 07420	1-1/4	25	250	0.14	
W 07421	1-1/2	25	125	0.20	
W 07422	2	—	50	0.33	
W 07423	3	—	25	0.84	


45° ELBOW

(STREET) DW-205	FTG x C				
Part	Size	Box	Ctn	Wt	
W 07430	1-1/4	25	250	0.17	
W 07431	1-1/2	25	125	0.20	
W 07432	2	—	50	0.32	
W 07433	3	—	25	0.81	


90° ELBOW

DW-200	C x C				
Part	Size	Box	Ctn	Wt	
W 07400	1-1/4	25	125	0.25	
W 07401	1-1/2	20	100	0.24	
W 07403	2	—	50	0.71	
W 07404	3	—	15	1.66	


90° ELBOW

LONG TURN D-700LT	C x C				
Part	Size	Box	Ctn	Wt	
A 07209	1-1/2	5	100	0.41	
A 07202	2	5	40	0.62	


90° ELBOW

EXTRA LONG TURN DW-700XLT	C x C				
Part	Size	Box	Ctn	Wt	
W 07451	1-1/2	10	50	0.55	
W 07452	2	5	25	1.11	
W 07453	3	2	10	2.28	
W 07454	4	—	5	5.10	


90° ELBOW

DW-203	FTG x C				
Part	Size	Box	Ctn	Wt	
W 07410	1-1/4	25	125	0.26	
W 07411	1-1/2	20	100	0.38	
W 07412	2	—	50	0.70	
W 07413	3	—	15	1.70	


60° ELBOW

DW-701	C x C				
Part	Size	Box	Ctn	Wt	
W 07064	1-1/2	25	250	0.35	
W 07066	3	2	20	0.95	

22-1/2° ELBOW

DW-703	C x C				
Part	Size	Box	Ctn	Wt	
W 07060	1-1/2	—	100	0.27	


TEE

DW-707	C x C x C				
Part	Size	Box	Ctn	Wt	
W 07500	1-1/4	20	100	0.37	
W 07511	1-1/2	20	100	0.52	
W 07522	2	5	25	0.85	
W 07533	3	—	10	2.10	


REDUCING

W 07510	1-1/2x1-1/4	10	100	0.51
W 07512	x1-1/4x1-1/4	10	100	0.52
W 07521	2 x 2 x 1-1/2	5	50	0.75
W 07520	x 1-1/4	5	30	0.68
W 07524	x1-1/2x1-1/2	5	50	0.87
W 07532	3 x 3 x 2	5	25	1.69
W 07531	x 1-1/2	5	25	1.45
W 07530	x 1-1/4	5	25	0.81

TEST CAP

DW-798T	C				
Part	Size	Box	Ctn	Wt	
W 07634	1/2	500	5,000	—	
W 07635	3/4	200	4,000	—	
W 07636	1	100	2,000	0.01	
W 07637	1-1/4	100	2,000	0.01	
W 07638	1-1/2	100	1,000	0.01	
W 07639	2	50	1,000	0.02	
W 07640	3	25	250	0.04	

VENT INCREASER

DW-752	C x TUBE				
Part	Size	Box	Ctn	Wt	
W 70112	3 x 4 x 18	—	6	4.37	
W 70111	3 x 4 x 24	—	5	5.90	

COPPER FITTING DATA

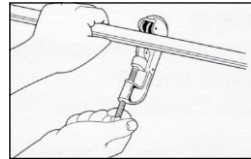
TEMPERATURE - PRESSURE RATINGS OF SOLDER JOINTS					
ALLOYS USED FOR JOINTS	SERVICE TEMPERATURE °F	STANDARD TUBE SIZE, TYPES K, L, AND M			
		WATER AND NON-CORROSIVE LIQUIDS & GASES			
		1/4 to 1	1-1/4 to 2	2-1/2 to 4	5 to 8
50 / 50 Tin Lead Solder Not to be used in potable water systems	100	200	175	150	135
	150	150	125	100	90
	200	100	90	75	70
	250	85	75	50	45
95 / 5 Tin-Antimony Solder	100	1090	850	705	660
	150	625	485	405	375
	200	505	395	325	305
	250	270	210	175	165
Alloy E Solder	100	710	555	460	430
	150	475	370	305	285
	200	375	290	240	225
	250	320	250	205	195
Alloy HB Solder	100	1035	805	670	625
	150	710	555	460	430
	200	440	345	285	265
	250	430	335	275	260
Brazing Alloys (melting at or above 1000°F)		Pressure-temperature ratings is that of the tubing being used			

Note: Ratings are those given in ASME B 16.22 "Wrought Copper and Copper Alloy Solder Joint Pressure Fittings." (a) Solder alloys are covered by ASTM Standard Specification B32. The Safe Drinking Water Act Amendment of 1986 prohibits the use of any solder having a lead content in excess of 02% for potable water systems.

PRESSURE LOSS IN FITTINGS EXPRESSED AS EQUIVALENT LENGTH OF TUBE, FEET						
Normal or Standard in Inches	Wrot Copper Fittings					
	90 Degree El	45 Degree El	Tee Straight Run	Tee Side Branch	Coupling	180 Degree Bend
3/8	0.5	0.5	0.5	1	-	0.5
1/2	0.5	0.5	0.5	1	-	1
5/8	0.5	0.5	0.5	2	-	1
3/4	1	0.5	0.5	2	-	2
1	1	1	0.5	3	-	2
1-1/4	2	1	0.5	4	0.5	3
1-1/2	2	2	1	5	0.5	4
2	2	2	1	7	0.5	8
2-1/2	2	3	2	9	0.5	16
3	3	4	-	-	1	20

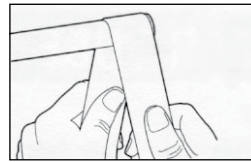
COPPER TUBE AND SOLDER TYPE FITTINGS

1. Cut tube square with the cutter or fine hack saw (32 tooth blade is recommended). Remove Burr.



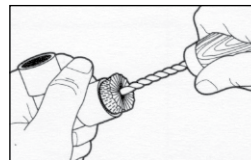
1. Cut tube to length & remove burr with file or scraper.

2. Clean outside end of copper tube thoroughly with sand cloth or sandpaper equal depth of fitting. Leave no dark spots.



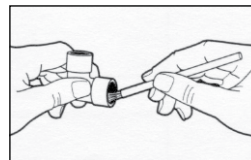
2. Clean outside of tube with sandpaper or sand cloth.

3. Clean inside of fitting carefully to tube stop with wire brush. Note: Sand cloth or sandpaper may also be used.



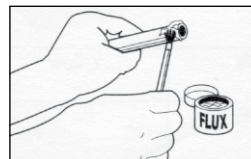
3. Clean inside of fitting with wire brush, sand cloth or sandpaper.

4. Using a brush, apply light uniform coat of soldering flux to the outside of the tube and inside of the fitting.



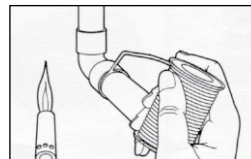
4. Apply flux thoroughly to inside of fitting.

5. Slip tube into fitting to tube stop. Turn tube back and forth once or twice to distribute flux evenly.



5. Apply flux thoroughly to outside of tube - assemble tube and fitting.

6. Apply heat uniformly around the fitting with torch. When solder melts upon contact with heated fitting, the proper soldering temperature has been reached. Remove flame and feed solder slightly off center at the bottom of the joint. Proceed across the bottom of the fitting and up to the top center position. Return to the starting point, and then proceed up the incomplete side to the top, again, overlapping the solder metal. Wipe off surplus solder with a piece of cloth.



6. Apply heat with torch. When solder melts upon contact with heated fitting, the proper temp for soldering has been reached. Remove flame & feed solder to the joint at one or two points until a ring of solder appears at the end of the fitting.

CAUTION: No not overheat the joint or direct the flame into the face of the fitting cup. Overheating could burn the flux, which will destroy its effectiveness and the solder will not enter the joint properly.



Plastic Pipe and Fittings Drainage Systems
Suggested Short Form Specifications

ABS Schedule 40 Cellular Core (Foam Core) Pipe and DWV Fitting System:

Pipe and fittings shall be manufactured from ABS compound with a cell class of 42222 for pipe and 32222 for fittings as per ASTM D 3965 and conform with National Sanitation Foundation (NSF) standard 14. Pipe shall be iron pipe size (IPS) conforming to ASTM F 628. Fittings shall conform to ASTM D 2661.

All pipe and fittings to be produced by a single manufacturer and to be installed in accordance with manufacturer's recommendations and local code requirements. **WARNING!** Never test with or transport/store compressed air or gas in ABS pipe or fittings. Solvent cement shall conform to ASTM D 2235. The system to be manufactured by Charlotte Pipe and Foundry Co. and is intended for non-pressure drainage applications where the temperature will not exceed 140°F.

PVC Schedule 40 Cellular Core (Foam Core) Pipe and DWV Fitting System:

Pipe and fittings shall be manufactured from PVC compound with a cell class of 11432 per ASTM D 4396 for pipe and 12454 per ASTM D 1784 for fittings and conform with National Sanitation Foundation (NSF) standard 14. Pipe shall be iron pipe size (IPS) conforming to ASTM F 891. Injection molded fittings shall conform to ASTM D 2665. Fabricated fittings shall conform to ASTM F 1866.

All pipe and fittings to be produced by a single manufacturer and to be installed in accordance with manufacturer's recommendations and local code requirements. **WARNING!** Never test with or transport/store compressed air or gas in PVC pipe or fittings. Solvent cements shall conform to ASTM D 2564. Primer shall conform to ASTM F 656. The system to be manufactured by Charlotte Pipe and Foundry Co. and is intended for non-pressure drainage applications where the temperature will not exceed 140°F.

PVC Schedule 40 Solid Wall Pipe and DWV Fitting System:

Pipe and fittings shall be manufactured from PVC compound with a cell class of 12454 per ASTM D 1784 and conform with National Sanitation Foundation (NSF) standard 14. Pipe shall be iron pipe size (IPS) conforming to ASTM D 1785 and ASTM D 2665. Injection molded fittings shall conform to ASTM D 2665. Fabricated fittings shall conform to ASTM F 1866.

All pipe and fittings to be produced by a single manufacturer and to be installed in accordance with manufacturer's recommendations and local code requirements. **WARNING!** Never test with or transport/store compressed air or gas in PVC pipe or fittings. Solvent cements shall conform to ASTM D 2564. Primer shall conform to ASTM F 656. The system to be manufactured by Charlotte Pipe and Foundry Co. and is intended for non-pressure drainage applications where the temperature will not exceed 140°F.

SPEC-SF-PPFDS (2-10-12)

Product Specification

- System:** **ABS Plus Foam Core DWV Pipe and ABS DWV Fitting System**
- Scope:** This specification covers ABS/PVC composite, cellular core (foam core) pipe and ABS DWV fittings used in sanitary drain, waste, and vent (DWV) and sewer applications. This system is intended for use in non-pressure applications where the operating temperature will not exceed 140°F.
- Specification:** Pipe shall be manufactured from virgin rigid ABS (acrylonitrile-butadiene-styrene) compounds with a minimum cell class of 42222 as identified in ASTM D 3965. Fittings shall be manufactured from virgin rigid ABS compounds with a Cell Class of 32222 as identified in ASTM 3965.

ABS/ PVC/ABS foam core pipe shall be Iron Pipe Size (IPS) conforming to ASTM F1488. ABS DWV fittings shall conform to ASTM D2661. Pipe and fittings shall be manufactured as a system and be the product of one manufacturer. All pipe and fittings shall be manufactured in the United States. All systems shall utilize a separate waste and vent system. Pipe and fittings shall conform to NSF International Standard 14.

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry and shall conform to all applicable plumbing, fire and building code requirements. Buried pipe shall be installed in accordance with ASTM D 2321 and ASTM F 1668. Solvent cement joints shall be made with solvent cement conforming to ASTM D 2235. The system shall be protected from chemical agents, fire stopping materials, thread sealant, or other aggressive chemical agents not compatible with ABS compounds. Systems shall be hydrostatically tested after installation. **WARNING!** Never test with or transport/store compressed air or gas in ABS pipe or fittings.

Referenced Standards*:

ASTM D 3965 Rigid ABS Compounds
ASTM F 1488 Co-extruded Composite Pipe
ASTM D 2661 ABS Drain, Waste, and Vent Fittings
ASTM D 2235 Solvent Cements for ABS Pipe and Fittings
ASTM D 2321 Underground Installation of Thermoplastic Pipe (non-pressure applications)
ASTM F 656 Primers for PVC Pipe and Fittings
ASTM F 1668 Procedures for Buried Plastic Pipe
NSF Standard 14 Plastic Piping Components and Related Materials

*Note: Latest revision of each standard applies.

SUBMITTAL FOR CHARLOTTE PIPE® ABS CELLULAR (FOAM CORE) PIPE AND ABS DWV FITTING SYSTEM

Date:

Job Name:

Location:

Engineer:

Contractor:

► Scope:

This specification covers ABS cellular core (foam core) pipe and ABS DWV fittings used in sanitary drain, waste and vent (DWV), sewer, and storm drainage applications. This system is intended for use in non-pressure applications where the operating temperature will not exceed 140° F.

► Specification:

Pipe shall be manufactured from virgin rigid ABS (acrylonitrile-butadiene-styrene) compounds with a cell class of 42222 as identified in ASTM D 3965. Fittings shall be manufactured from virgin rigid ABS compounds with a cell class of 32222 as identified in ASTM D 3965.

ABS cellular core pipe shall be Iron Pipe Size (IPS) conforming to ASTM F 628. Injection molded ABS DWV fittings shall conform to ASTM D 2661. All systems shall utilize a separate waste and vent system. All pipe and fittings shall be manufactured in the United States. Pipe and fittings shall conform to NSF International Standard 14.

► Installation:

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry and shall conform to all applicable plumbing, fire, and building code requirements. Buried pipe shall be installed in accordance with ASTM D 2321 and ASTM F 1668. Solvent cement joints shall be made with a solvent cement conforming to ASTM D 2235. The system shall be protected from chemical agents, fire-stopping materials, thread sealant, plasticized-vinyl products or other aggressive chemical agents not compatible with ABS compounds. The system shall be hydrostatically tested after installation. **WARNING!** Never test with or transport/store compressed air or gas in ABS pipe or fittings. Doing so can result in explosive failures and cause severe injury or death.

► Referenced Standards:

- ASTM D 3965: Rigid ABS Compounds
- ASTM F 628: Co-extruded ABS Pipe with Cellular Core
- ASTM D 2661: ABS Drain, Waste and Vent Fittings
- ASTM D 2235: Solvent Cements for ABS Pipe and Fittings
- ASTM D 2321: Underground Installation of Thermoplastic Pipe (non-pressure applications)
- ASTM F 1668: Procedures for Buried Plastic Pipe
- NSF Standard 14: Plastic Piping Components and Related Materials

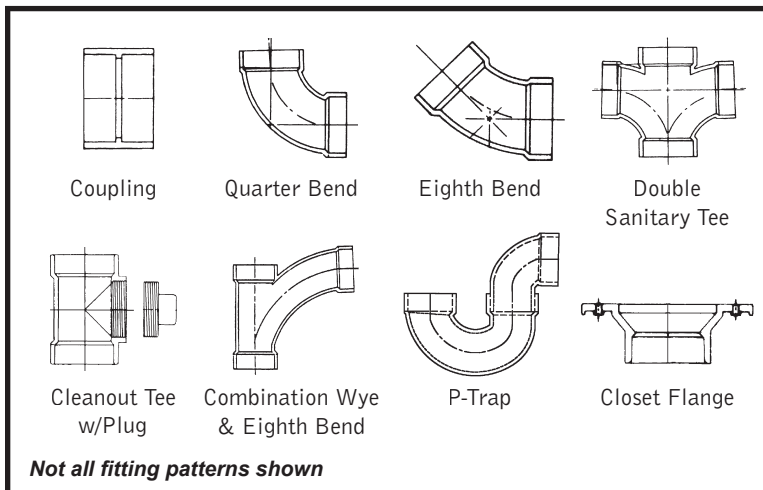


ABS Foam Core Pipe

ABS Schedule 40 DWV Pipe (For Non-Pressure Applications)



ABS SCHEDULE 40 FOAM CORE (BLACK)				PLAIN END		ASTM F 628
PART NO.	NOM. SIZE	UPC # 611942-	QTY. PER SKID	AVG. OD (IN.)	MIN. WALL (IN.)	WT. PER 100 FT. (LBS.)
ABS 3112	1 1/2" x 10'	03132	2590	1.900	0.145	27.1
ABS 3112	1 1/2" x 20'	03133	5180	1.900	0.145	27.1
ABS 3200	2" x 10'	03134	1670	2.375	0.154	37.7
ABS 3200	2" x 20'	03135	3340	2.375	0.154	37.7
ABS 3300	3" x 10'	03136	750	3.500	0.216	74.5
ABS 3300	3" x 20'	03137	1500	3.500	0.216	74.5
ABS 3400	4" x 10'	03138	480	4.500	0.237	107.1
ABS 3400	4" x 20'	03139	960	4.500	0.237	107.1
ABS 3600	6" x 20'	03141	400	6.625	0.280	187.8





Medium Black ABS Solvent Cement

Technical Specification

Description

- Medium-bodied black cement for use on all schedules and classes of ABS pipe and fittings up to 6" diameter with interference fit.
- Lo-V.O.C. Solvent Cement meets California South Coast Air Quality Management District (SCAQMD) 1168/316A or BAAQMD Method 40 and various environmental requirements.
- For all non-pressure applications.
- Recommended application temperature 40°F to 110°F / 4°C to 43°C.
- Meets ASTM D2235.



Listings



NSF Standard 61 for DWV and Sewer Waste



IAPMO Listed

Maximum VOC per SCAQMD 1168/316A or BAAQMD Method 40: 325 g/L

INGREDIENTS (CAS Number)

ABS Resin (9003-56-9), Acetone (67-64-1), Black Pigment (N/A), Methyl Ethyl Ketone (78-93-3)

MSDS Number: 1300E

<u>Product Number</u>	<u>Size</u>	<u>Qty</u>	<u>Wgt</u>	<u>Product Number</u>	<u>Size</u>	<u>Qty</u>	<u>Wgt</u>
30999	4 oz.	24	8 lbs.	308923	16 oz.	10	15 lbs.
309993	4 oz.	48	8 lbs.	30902	32 oz.	12	26 lbs.
30889	8 oz.	24	15 lbs.	309023	32 oz.	6	26 lbs.
308893	8 oz.	36	15 lbs.	30915	Gallon	6	51 lbs.
30892	16 oz.	24	28 lbs.				

Oatey Co.
4700 West 160 th St.
Cleveland, OH 44135

Phone: 1-800-321-9532
Phone: 1-800-321-9535
Visit www.oatey.com for Update





Medium Black ABS Solvent Cement

Technical Specification

CHEMICAL PROPERTIES

Appearance	Black Liquid
Viscosity	Min. 500 cps @73° F ± 2° F
Density	7.42 ± 0.2 lbs/gallon
Shelf Life	3 Years from Mfg. Date

PHYSICAL PROPERTIES

Lap Shear Strength	(min. per ASTM Standards)
48 hours	800 psi
Set Up Time	
30° F to 50° F	5 – 6 minutes
50° F to 70° F	3 – 4 minutes
70° F to 90° F	1 – 2 minutes

Precautions

Read all information carefully before using this product.

DANGER!: CAUSES SERIOUS EYE IRRITATION. HARMFUL IF INHALED. MAY CAUSE DROWSINESS OR DIZZINESS. MAY CAUSE RESPIRATORY IRRITATION. REPEATED EXPOSURE MAY CAUSE SKIN DRYNESS OR CRACKING. Long term overexposure to solvents may cause damage to the brain, nervous system, reproductive system, respiratory system, mucous membranes, liver and kidneys. KEEP OUT OF REACH OF CHILDREN.

PRECAUTIONS: Avoid breathing vapors. Use only outdoors or in a well-ventilated area. Use explosion-proof electrical/ventilating equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear a NIOSH-approved respirator for organic solvents. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Vapors may accumulate in low places and may ignite explosively. Keep container tightly closed and cool. Wear protective gloves and eye protection. Wash thoroughly after handling. Do not eat or drink while using this product.

EMERGENCY/FIRST AID: CALL 1-877-740-5015 FOR INSTRUCTIONS.

IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. Rinse mouth. This product may be aspirated into the lungs and cause chemical pneumonitis, a potentially fatal condition. **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical attention. **IF ON SKIN:** Rinse skin with water/shower. Take off immediately all contaminated clothing. **IF INHALED:** Remove person to fresh air and keep comfortable for breathing. Call POISON CENTER/doctor if you feel unwell. If medical advice is needed, have product container or label at hand. **FIRE:** Use dry chemical, foam, or carbon dioxide extinguisher. Water spray may be applied to reduce potential vapors or for cooling. Burning liquid extinguished with water will float and may re-ignite on surface of water. **SPILLS:** Remove all sources of ignition and ventilate area. Personnel cleaning up the spill should wear appropriate personal protective equipment, including respirators if vapor concentrations are high. Soak up spill with absorbent material. Put absorbent material in covered, labeled metal containers. Dispose of contents/ container in accordance with local regulations. Store in a well-ventilated space. Store locked up.





Directions for Use

Store and use at temperatures between 40°F and 110°F. At temperatures outside of this range, special care must be taken to prepare good joints and prevent exposure to solvents. Stir or shake before using; if jelly-like, don't use. Do not thin.

1. Cut pipe ends square, chamfer and clean pipe ends.
2. Check dry fit of pipe and fitting. Pipe should easily go 1/3 of the way into the fitting. If pipe bottoms, it should be snug.
3. Use a suitable applicator at least 1/2 the size of the pipe diameter. For larger size pipe systems use a natural bristle brush or roller.
4. Apply liberal coat of cement to pipe to the depth of the socket, leave no uncoated surface.
5. Apply a thin coat of cement to inside of fitting, avoid puddling of cement. Puddling can cause weakening and premature failure of pipe or fitting. Apply a second coat of cement to the pipe.
6. Assemble parts QUICKLY. Cement must be fluid. If cement surface has dried, recoat both parts.
7. Push pipe FULLY into fitting using a ¼ turning motion until pipe bottoms.
8. Hold pipe and fitting together for 30 seconds to prevent pipe push-out - longer at low temperatures. Wipe off excess.
9. Allow 15 minutes for good handling strength and 2 hours cure time at temperatures above 60°F before pressure testing up to 180 psi. Longer cure times may be required at temperatures below 60°F or with pipe above 3".

DO NOT TEST WITH AIR.

Revision Date: 3/15/2013

ADJUSTABLE ON-GRADE CLEANOUT

» 834 SERIES

FinishLine™

SPECIFICATION

Sioux Chief 834 series FinishLine™ adjustable on-grade cleanout shall be used where necessary in drainage systems. Cleanout shall allow adjustment before and AFTER the concrete pour. Scoriated cleanout cover shall meet applicable load requirements for intended use. Cleanout shall include a slotted, polypropylene or brass cleanout plug, situated in base adapter. Designed in accordance with ASME A112.36.2M-2002.

MATERIALS

Ring/cover: Nickel-bronze, stainless steel, tenzalloy

Coring plug: High-impact polymer

Head adapter/coring sleeve: Gray ABS

Base adapter: ABS, PVC

Cleanout plug: Polypropylene, brass

STRAINER LOAD RATING

Nickel-bronze: 4,000 lbs. (Medium duty)

Stainless steel: 4,000 lbs. (Medium duty)

Tenzalloy: 1,250 lbs. (Light duty)

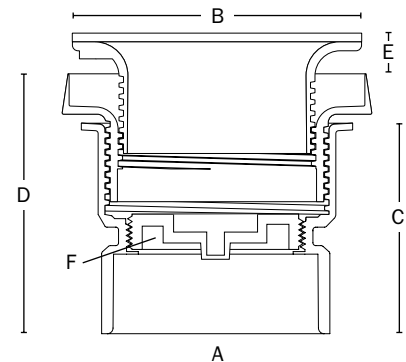
DIMENSIONS

A: Connection	3×4", 4" Sch. 40 hub
B: Ring/strainer diameter	
Round	6 ¹ / ₂ "
Square	6 ⁵ / ₈ "
C: Base adapter height	4 ¹ / ₂ "
D: Pre-pour height	5 ³ / ₈ " – 6 ⁵ / ₈ "
E: After-pour height	
Round	0" – 1 ¹ / ₄ "
Square	5 ¹ / ₁₆ " – 1 ¹ / ₄ "
F: Cleanout plug	3 ¹ / ₂ " male thread

ITEM # SUBMITTED	_____
JOB NAME	_____
LOCATION	_____
ENGINEER	_____
CONTRACTOR	_____
PO#	_____ TAG _____



834-4PNQ



Create Item Number

834-ABCD

e.g. **834-4PNRV:** FinishLine™ cleanout with 4" PVC hub connection and vandal-resistant nickel-bronze cover

CONNECTION **A**

- 3** = 3×4" Sch. 40 hub
- 4** = 4" Sch. 40 hub

CONNECTION TYPE **B**

- A** = ABS base adapter
- P** = PVC base adapter

RING/COVER **C**

- NR** = Round nickel-bronze
- NQ** = Square nickel-bronze
- SR** = Round stainless steel
- SQ** = Square stainless steel
- TR** = Round tenzalloy

INSTALLED OPTIONS **D**

- V** = Vandal-resistant cover screws
- S** = Stamping: specify letters
- C** = Carpet marker
- Z** = Complies with Buy American Act¹

ACCESSORIES (ordered separately)

- 832-S4** = Leveling shim kit
- 832-EX4** = Ductile extension adapter
- 832-W** = Flexible locating bristle kit

¹ Available for round nickel-bronze covers only

CLEANOUT COVER KIT

873 series

SPECIFICATION

Sioux Chief 873 series cleanout cover kit shall be used where necessary in drainage systems. Kit shall include a 20 gauge, stainless steel cleanout cover, which shall fasten via a 2 1/4" stainless steel bolt with 1/4"-20 threads to a cast brass MIP plug with countersunk square head. Plug shall be tapped to accept bolt. Kits shall be available for large, medium or small applications.

MATERIALS

cleanout cover: 20 gauge 430 stainless steel
bolt: stainless steel, 1/4"-20 thread
plug: cast brass, 1/4"-20 tapped for bolt, countersunk square head, machined threads

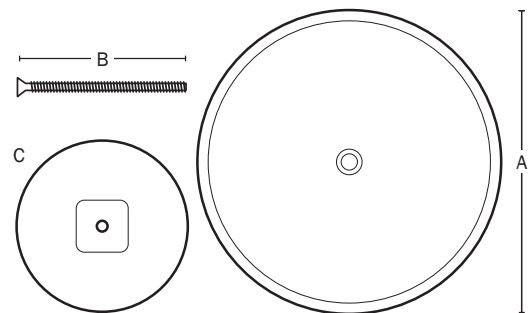
DIMENSIONS

- A: cover diameter
 small kit: 4"
 medium kit: 5"
 large kit: 6"
- B: bolt
 2 1/4" long, 1/4" x 20 thread
- C: cleanout plug
 small kit: 2" MIP thread, 3/8" thick, 1/4" x 20 tapped
 medium kit: 3" MIP thread, 1/2" thick, 1/4" x 20 tapped
 large kit: 4" MIP thread, 1/2" thick, 1/4" x 20 tapped

Item # Submitted _____
Job Name _____
Location _____
Engineer _____
Contractor _____
PO# _____ TAG _____



873-350



Create Item Number

873-AB

e.g. 873-350 = Cleanout cover kit including: 5" diameter cover, 3" MIP brass plug and 2 1/4" bolt

A OPTIONAL KIT SIZE

- 240 4" cover, 2" MIP plug, 2 1/4" bolt
- 350 5" cover, 3" MIP plug, 2 1/4" bolt
- 460 6" cover, 4" MIP plug, 2 1/4" bolt

B OPTIONS

- P polypropylene plug in lieu of brass plug

WATER HAMMER ARRESTERS

650 SERIES

HydraRester™

ITEM # SUBMITTED	_____
JOB NAME	_____
LOCATION	_____
ENGINEER	_____
CONTRACTOR	_____
PO#	_____ TAG _____

SPECIFICATION

Sioux Chief 650 Series piston-type water hammer arresters shall be required in piping systems. Water hammer arresters shall have sufficient volume of air to dissipate the calculated kinetic energy generated in the piping system. Arresters shall be effective when installed at any angle. Arresters shall be approved for installation with no access panel required. Water hammer arresters shall be ANSI/ASSE 1010 2004 certified. Arresters shall be sized and placed per manufacturer's instructions.

MATERIALS

- Arrester body:** type L copper tube
- Piston:** poly piston with two EPDM o-rings
- Male thread fitting:** copper MIP thread
- Piston lubrication:** Dow-Corning, 111 FDA approved silicone compound
- PEX F1960 fitting:** No Lead EcoBrass 69300

WORKING LIMITS*

- Max working temperature:** 250°F
- Max working pressure:** 350 PSIG
- Burst tested:** to 2,900 PSIG

* PEX and CPVC connection specifications are limited to those called out in their respective ASTM Standards for Fittings (CPVC D2846, PEX F1807, PEX F1960).

INSTALLATION

- Angle:** May be installed at any angle
- Access panels:** No access panels required
- Sweat connection:** Compatible with Press Fittings or Push Fittings

SIZING & PLACEMENT

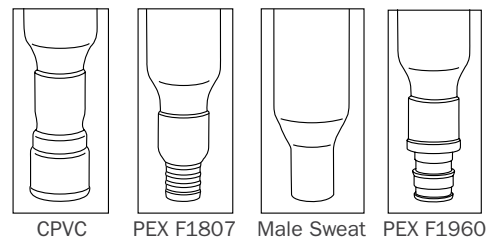
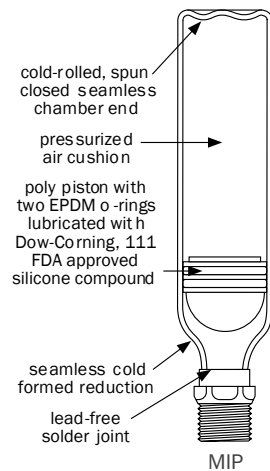
Refer to instructions on product package, catalog or website.

CERTIFICATIONS/APPROVALS

Certified by ASSE to the ANSI/ASSE 1010-2004 standard

DIMENSIONS

Arrester size	A	B	C	D	E	F
Overall height						
male thread	6½"	8¾"	11"	10⅞"	12⅝"	15½"
male sweat	8¼"	10"	12½"	11"	13½"	16"
CPVC	7½"	9½"	12"	—	—	—
PEX F1807	6½"	8¾"	11"	—	—	—
PEX F1960	6½"	8¾"	11"	—	—	—
Chamber width	1⅜"	1⅜"	1⅜"	2⅛"	2⅛"	2⅛"
Connection size	½"	¾"	1"	1"	1"	1"
Volume (cu. in.)	5	7	11	20	29	36
Fixture units	1–11	12–32	33–60	61–113	114–154	155–330



Choose Item Number

- | | | | |
|-----------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------|
| <input type="checkbox"/> 652-A = A size, MIP | <input type="checkbox"/> 652-AS = A size, sweat | <input type="checkbox"/> 652-AX = A size, PEX F1807 | <input type="checkbox"/> 652-AC = A size, CPVC socket |
| <input type="checkbox"/> 653-B = B size, MIP | <input type="checkbox"/> 653-BS = B size, sweat | <input type="checkbox"/> 653-BX = B size, PEX F1807 | <input type="checkbox"/> 653-BC = B size, CPVC socket |
| <input type="checkbox"/> 654-C = C size, MIP | <input type="checkbox"/> 654-CS = C size, sweat | <input type="checkbox"/> 654-CX = C size, PEX F1807 | <input type="checkbox"/> 654-CC = C size, CPVC socket |
| <input type="checkbox"/> 655-D = D size, MIP | <input type="checkbox"/> 655-DS = D size, sweat | <input type="checkbox"/> 652-AWG = A size, PEX F1960 | |
| <input type="checkbox"/> 656-E = E size, MIP | <input type="checkbox"/> 656-ES = E size, sweat | <input type="checkbox"/> 653-BWG = B size, PEX F1960 | |
| <input type="checkbox"/> 657-F = F size, MIP | <input type="checkbox"/> 657-FS = F size, sweat | <input type="checkbox"/> 654-CWG = C size, PEX F1960 | |



Precision Plumbing Products

"Specify with Confidence - Install with Pride"

P1-500 AND P2-500 PRESSURE DROP ACTIVATED SUBMITTAL TRAP PRIMER

www.pppinc.net

The P1-500 and P2-500 are adjustable to the static line pressure by use of the adjusting screw. System operating range is 20 psi minimum to 80 psi (138 to 552 kpa) maximum.

The valve requires a 10 psi (70 kpa) pressure drop across the valve to activate and will deliver a metered amount of water to the floor drain. The trap Primer is to be connected to a cold water supply only.

Constructed of 360 brass, EPDM E70 O-rings, Dow #7 Silicone, #60 stainless steel mesh screen, stainless steel adjustment screw.

Model P1-500 will prime 1-4 floor drains using our patented DU-U Distribution unit.

Model P2-500 will prime 1-2 floor drains using our patented DU-U Distribution unit.

Model P-1

Model P-2



PROJECT SUBMITTAL

Project: _____

Contractor: _____

Engineer: _____

Date Submitted: _____

Prepared By: _____

**FLOOR DRAIN TRAP PRIMER VALVE
MODELS: P1-500 & P2-500**

INSTALLATION REQUIREMENTS

This valve is designed to be installed on 1/2" to 1 1/2" cold water line, feeding a flush valve or other open and closing valve supply line that is frequently used.

Trap Primer valve makeup line to floor drain is recommended to be a minimum of 12" off the finished floor before a 90° elbow can be installed.

The furthest recommended distance of makeup line is 20' to the floor drain.

Trap primer makeup up line must have continuous slope to the floor drain (consult local code requirements).

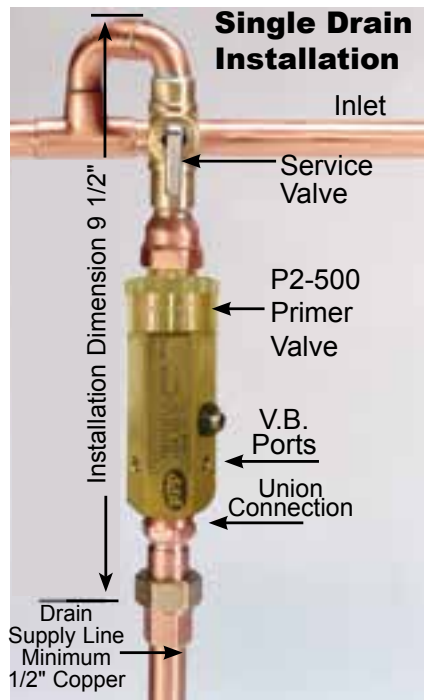
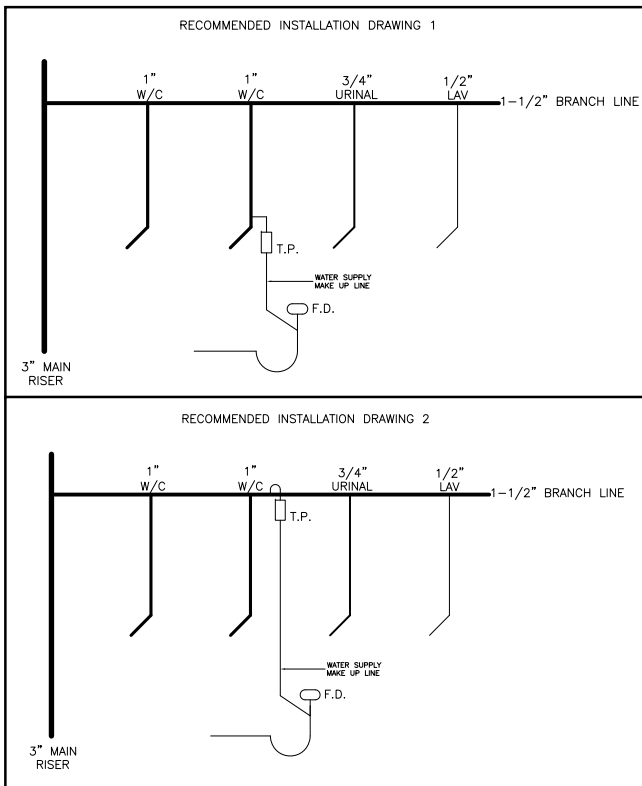
Install with a shut off valve for servicing on the inlet side and a union connection on the outlet side.

The valve must be installed level.

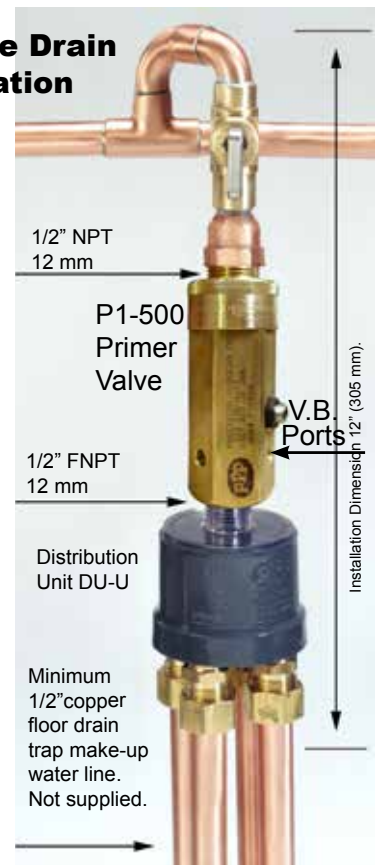
If using the distribution unit the clear plastic cover must be used.

Do not subject the valve to rough in pressure test.

FLOOR DRAIN TRAP PRIMER DISTRIBUTION CHART		
Primer Model	# of Drains	Distribution Units
P2-500	1	N/A
P2-500	2	DU-4/DU-U
P1-500	3	DU-4/DU-U
P1-500	4	DU-4/DU-U



Multiple Drain Installation



Precision Plumbing Products

Division of JL Industries, Inc.

802 SE 199th Ave
Portland, Oregon 97233

T (503) 256-4010

F (503) 253-8165

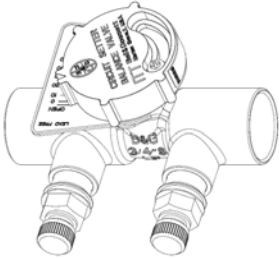
www.pppinc.net



JL Industries, Inc.



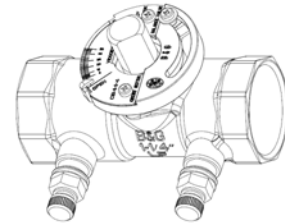
JOB:	REPRESENTATIVE:	
UNIT TAG:	ORDER NO.	DATE:
ENGINEER:	SUBMITTED BY:	DATE:
CONTRACTOR:	APPROVED BY:	DATE:



Circuit Setter[®] Plus

Calibrated Balance Valves
with NPT and Solder Connections

LEAD FREE*


DESCRIPTION

The Bell & Gossett CIRCUIT SETTER PLUS and CIRCUIT SETTER PLUS "RF" calibrated balance valves are a precision machined ball type triple purpose balancing instrument. They are precisely calibrated for use as a presettable balance valve, variable orifice flow meter and positive shut-off service valve.

Valves are furnished with a calibrated nameplate and memory stop indicator which permits a preset to a fixed open position and then closed for service without disturbing valve setting.

Valves are equipped with capped readout valves fitted with internal check valves and 1/4" NPT tapped and plugged drain port.

CONSTRUCTION

Body: Brass ASTM B283-C69300*
 Ball: 304 Stainless Steel
 Seat Rings: Glass and Carbon filled TFE
 Readout Valves: Brass with EPT check valves
 Stem "O" Ring: EPDM

MAXIMUM WORKING PRESSURE

NPT Models: 400 psig (2069 kPa)
 Sweat Models: See table below

MAXIMUM OPERATING TEMPERATURE

-4°F(-20°C) to 250°F(121°C)

*Contains less than 0.25% lead content by weight on wetted surfaces.

CSA CERTIFIED: AB1953; Vermont S152.

Maryland House Bill 372 [statute 12-605].

ANSI/NSF-61 Annex G Compliant.

Type Solder	Maximum Pressure Limitations for 1/2"-1" With Solder Connections	
	Pressure PSI (KPa)	Temp °F (°C)
95-5 Tin-Antimony	300 (2069)	200 (93)
	250 (1724)	225 (107)
	200 (1379)	250(121)

LEAD-FREE CIRCUIT SETTER PLUS Calibrated Balance Valves
SCHEDULE

A-549LFP(C)

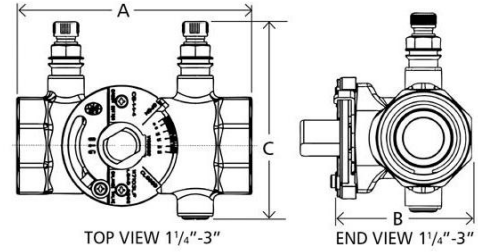
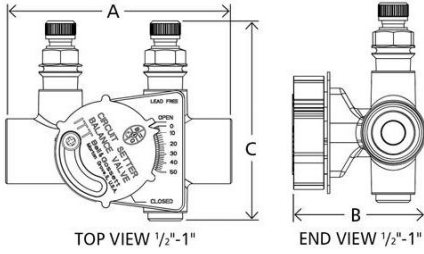
MODEL NO.	PART NUMBER	TAGGING INFORMATION	QUANTITY
RF-1/2S LF	117410LF		
RF-3/4S LF	117411LF		
CB-1/2S LF	117412LF		
CB-3/4S LF	117413LF		
CB-1S LF	117401LF		
CB-1-1/4S LF	117402LF		
CB-1-1/2S LF	117403LF		
CB-2S LF	117404LF		
CB-1/2 LF	117414LF		
CB-3/4 LF	117415LF		
CB-1 LF	117416LF		
CB-1-1/4 LF	117103LF		
CB-1-1/2 LF	117104LF		
CB-2 LF	117105LF		
CB-2-1/2 LF	117106LF		
CB-3 LF	117107LF		

Xylem Inc.
8200 N. Austin Avenue
Morton Grove, IL 60053
Phone: (847)966-3700
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LEAD-FREE CIRCUIT SETTER PLUS Calibrated Balance Valves

A-549LFP(C)



DIMENSIONS AND WEIGHTS *

MODEL NUMBER	A	SIZE	B	CONNECTION TYPE	C	DIMENSIONS IN INCHES (MM)			WEIGHT IN
						LBS. (KG)			
RF-1/2S LF		1/2"		SWEAT		2.91 (73.9)	1.82 (46.2)	2.85 (72.4)	0.6 (0.27)
RF-3/4S LF		3/4"		SWEAT		3.51 (89.2)	2.05 (52.1)	3.10 (78.7)	0.75 (0.34)
CB-1/2S LF		1/2"		SWEAT		2.91 (73.9)	1.82 (46.2)	2.85 (72.4)	1 (0.5)
CB-3/4S LF		3/4"		SWEAT		3.51 (89.1)	2.05 (52.1)	3.10 (78.7)	1.25 (0.6)
CB-1S LF		1"		SWEAT		4.29 (109)	2.33 (59.2)	3.33 (84.6)	2 (0.9)
CB-1-1/4S LF		1-1/4"		SWEAT		4.91 (124.7)	3.08 (78.2)	3.69 (93.7)	3.5 (1.6)
CB-1-1/2S LF		1-1/2"		SWEAT		5.21 (132.2)	3.27 (83)	3.95 (100.2)	3.8 (1.7)
CB-2S LF		2"		SWEAT		6.31 (160.3)	3.83 (97.4)	4.44 (112.8)	6.2 (2.8)
CB-1/2 LF		1/2"		NPT		2.94 (74.6)	1.98 (50.3)	3.02 (76.7)	1.25 (0.6)
CB-3/4 LF		3/4"		NPT		3.06 (77.7)	2.17 (55.1)	3.12 (79.2)	1.5 (0.7)
CB-1 LF		1"		NPT		3.81 (96.8)	2.47 (62.7)	3.42 (86.9)	2 (0.9)
CB-1-1/4 LF		1-1/4"		NPT		4.41 (112)	3.19 (81)	3.69 (93.7)	3.8 (1.7)
CB-1-1/2 LF		1-1/2"		NPT		4.42 (112.1)	3.37 (85.7)	3.95 (100.2)	3.5 (1.6)
CB-2 LF		2"		NPT		5.13 (130.2)	3.98 (101.1)	4.44 (112.8)	6.2 (2.8)
CB-2-1/2 LF		2-1/2"		NPT		6.00 (152.4)	4.51 (114.7)	4.83 (122.6)	9 (4.1)
CB-3 LF		3"		NPT		6.50 (165.1)	5.12 (130.1)	5.44 (138.2)	12 (5.4)

*All dimensions +/-0.125 (3.2 mm) tolerance. Dimensions are subject to change. Not to be used for construction purposes unless certified.

TYPICAL SPECIFICATION

Furnish and install as shown on plans with manufacturer recommendations Model CB or "RF" calibrated balance valves.

PRE-SET BALANCE FEATURE

Valves to be designed to allow installing contractor to pre-set balance points for proportional system balance prior to system start-up in accordance with pre-set balance schedule.

VALVE DESIGN AND CONSTRUCTION

All valves 1/2" to 3" pipe size to consist of Lead Free Brass** body/SS ball construction with glass and carbon filled TFE seat rings. Valves to have differential pressure read-out ports across valve seat area. Read-out ports to be fitted with internal EPT inserts/check valves. Valve bodies to have 1/4" NPT tapped drain/purge port. Valves to have memory stop feature to allow valve to be closed for service and then reopened to set point without disturbing balance position. All valves to have calibrated nameplates to assure specific valve settings. Valves shall be designed for positive shut-off.

wetted surfaces.

CSA CERTIFIED: AB1953; Vermont S152; Maryland House Bill 372 [statute 12-605]. ANSI/NSF-61 Annex G Compliant.

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DESIGN PRESSURE/TEMPERATURE

A. 1/2" - 3" NPT connections 400 psig (2069 kPa) at 250°F (121°C)

B. 1/2" - 2" Sweat connections (see table page1)

All balance valves to be ITT Bell & Gossett Model No. CB-_____LF or Model No. RF-_____LF (note sizes).

IMPORTANT:

When monitoring system flow, care must be exercised to avoid direct skin or eye contact with liquids that may escape. Liquids with temperatures in excess of 120°F (49°C) may cause burns.

Bell & Gossett Circuit Setter Balance Valves are not recommended for use with meter connections pointing downward.



Submittal Data Information

101-169

00e™ Series VT2218

Effective: September 16, 2015

Supersedes: August 12, 2015

Job: _____ Engineer: _____ Contractor: _____ Rep: _____

ITEM NO.	MODEL NO.	

Specifications

- Maximum Shut-off Head: 22 feet
- Maximum Flow: 18 gpm
- Maximum Operating Pressure: 125 psi (862 kPa)
- Maximum Water Temp: 230°F (110°C)
- Minimum Water Temp: 36°F (2°C)
- Electrical specifications:
 - Voltage: 110-120V, 50/60 Hz, Single phase
 - Operating Power Range: 9W to 58W
 - Maximum AMP Rating: 0.67
- Equipped with a cast iron casing and should be used for closed loop systems only.
- Taco circulator pumps are for indoor use only
- Acceptable for use with water or maximum of 50% water/glycol solution.

Applications

The VT2218 is a temperature sensing, variable speed, high-efficiency wet rotor circulator with an ECM permanent magnet motor. It's ideal for Delta-T or setpoint temperature applications. Typical uses include hydronic systems zoned with zone valves, radiant loops, injection pumping, snowmelt or hydro-air fan coils. Can also be used in constant speed mode for zoning with circulators, indirect water heaters or primary boiler loops.



Materials of Construction:

- Casing:Cast Iron
- Stator Housing:Aluminum/Composite
- Cartridge:Stainless Steel
- Impeller:Non-Metallic
- Shaft:Ceramic
- Bearings:Ceramic
- O-Ring & Gaskets:EPDM
- Integral Flow Check (IFC®):
 - Body, PlungerAcetal
 - O-ring SealEPDM
 - SpringStainless Steel

Pump Dimensions & Weights

Model	Flange Code	A		B		C		D		F		G		Ship Wt.	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	Kg
VT2218F	S	8-1/8	207	6	153	3-1/4	82	2	54	4-1/4	107	6-3/8	161	7-3/4	3.52
VT2218F/4	U	8-1/8	207	6	153	3-1/4	82	2	54	4-1/4	107	6-3/8	161	7-3/4	3.52

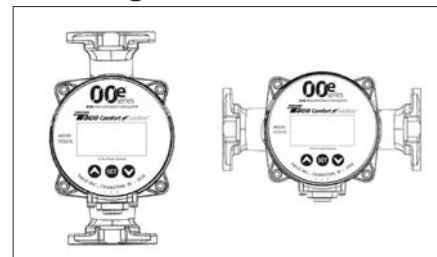
Electrical Data

Model	Volts	Hz	Ph	Max.Amps	RPM
All Models	110/120	50/60	1	.67	1650 - 4200
Motor Type	ECM, Permanent Magnet, Electronically Protected				

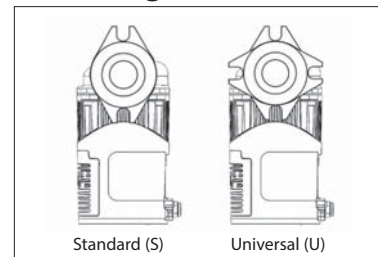
Maximum Watts

Speed 1	Speed 2	Speed 3	Speed 4
9	24	40	58

Mounting Positions



Flange Orientation



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