



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
P.O. Box 16620
LittleRock, AR 72231
Phone 501-834-3320
Fax 501-834-5416

Date: 9/1/2025

Return Request: 9/15/2025

Project: Hot Springs National Park – Rehabilitate Bathhouses – Maurice Bathhouse

Supplier: Comfort Systems USA (Arkansas), Inc.

Manufacturer: Varies

Submittal: Plumbing Piping

Submittal Number: 221000.001

Spec Section: 221000, 3.2

Drawing # and Installation Location: P1.0 through P1.4

ARCHITECT

Strata Architecture
1701 Oak Street, Suite 100
Kansas City, Missouri 64108
(816)474-0900

GENERAL CONTRACTOR

Tepa, LLC
2345 Grand Blvd, Suite 700
Kansas City, Missouri 64108
(816)708-1110

ENGINEER

IMEG Corp.
1600 Baltimore Street, Suite 300
Kansas City, Missouri 64108
(816)842-8437

MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc.
9924 Landers Road
North Little Rock, Arkansas 72117
(501)834-3320

Comments:

CSUSA PROJECT NO.

25-7065

joe@comfortar.com

9924 Landers Road
No. LittleRock, AR 72117



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Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 221000, 3.2, A, 1.

Cold Water, Hot Water, and Tempered Water Above Grade

COPPER TUBE FOR PLUMBING AND MECHANICAL APPLICATIONS

Job Name Maurice Bathhouse

Contractor Comfort Systems USA (Arkansas), Inc.

Job Location Hot Springs, Arkansas

Wholesaler

Engineer IMEG Corp

Streamline[®] Rep

Product Description:

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

Key Specifications:

Streamline[®] CopperTube (Type K, L, M) shall conform to the **NSF/ANSI/CAN 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. Coils are manufactured to 060 temper, and straight lengths are manufactured to H58 temper.

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:

C12200	99.9% Pure Copper (can be used for potable water)
NSF/ANSI/CAN 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)
NSF/ANSI 372	Safe Drinking Water (Lead Content)

Copper [tube or fitting] UNS C12000 has been evaluated by NSF International to NSF/ANSI/CAN 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.



MADE IN USA

A BRAND OF MUELLER INDUSTRIES 

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/BNDL	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 to provide worst case scenario. System designer should account for fitting and joining methodology to determine actual system ratings.

COPPER FITTINGS FOR PLUMBING AND MECHANICAL APPLICATIONS

Job Name Maurice Bathhouse

Contractor Comfort Systems USA (Arkansas), Inc.

Job Location Hot Springs, Arkansas

Wholesaler

Engineer IMEG Corp

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. 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 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)
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.



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Spec Section 221000, 3.2, A, 4.

Shut-Off Valves

Bronze Ball Valves

Two-Piece Body • Full Port • Stainless Trim • Blowout-Proof Stem • Vented Ball

600 PSI/41.4 bar non-shock cold working pressure
150 PSI/10.3 bar saturated steam*

CONFORMS TO MSS SP-110

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Stainless Steel 300 Series
2. Handle	Zinc Plated Steel Clear Chromate Plastisol Coated
3. Threaded Pack Gland	Brass ASTM B 16 Alloy C36000
4. Packing	PTFE
5. Stem	Stainless Steel ASTM A 276 Type 316
6. Thrust Washer	Reinforced PTFE
7. Ball (Vented)	Stainless Steel ASTM A 276 Type 316 or ASTM A 351 Type CF8M
8. Seat Ring (2)	Reinforced PTFE
9. Body	Bronze ASTM B 584 Alloy C84400
10. Body End Piece	Bronze ASTM B 584 Alloy C84400

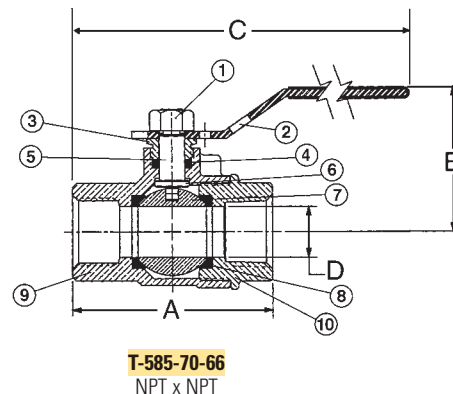
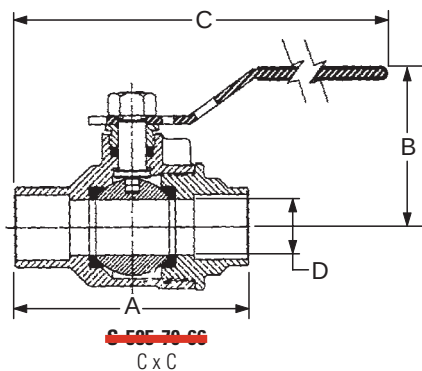
¼" size only has a 304 stainless steel grounding washer.



T-585-70-66
Threaded



~~S-585-70-66~~
Solder



T-585-70-66
NPT x NPT

DIMENSIONS—WEIGHTS—QUANTITIES

Dimensions																			
		T-585-70-66				~~S-585-70-66~~				T-585-70-66				~~S-585-70-66~~					
Size	A		A		B		C		C		D		T-585-70-66		~~S-585-70-66~~		Master		
In. mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	Lbs.	Kg.	Lbs.	Kg.	Ctn. Qty		
¼ 8	2.00	51	1.75	44	1.75	44	5.00	127	4.75	121	.38	10	.45	.21	.42	.19	100		
⅜ 10	2.00	51	1.84	47	1.75	44	5.00	127	4.81	122	.38	10	.45	.21	.42	.19	100		
½ 15	2.44	62	2.56	65	1.88	48	5.19	132	5.25	133	.50	13	.64	.29	.60	.27	100		
¾ 20	2.94	75	3.25	82	2.25	57	6.25	159	6.25	159	.75	19	1.33	.60	1.27	.58	50		
1 25	3.34	85	3.75	95	2.38	60	6.44	164	6.63	168	1.00	25	1.79	.81	1.72	.78	40		
1¼ 32	4.19	106	5.06	128	3.00	76	6.75	171	7.19	183	1.25	32	3.34	1.52	3.40	1.55	20		
1½ 40	4.72	120	5.99	151	3.16	80	9.06	230	9.69	246	1.50	38	4.84	2.20	5.18	2.35	10		
2 50	5.16	131	6.72	170	3.50	89	9.25	235	10.06	256	2.00	51	7.41	3.37	7.83	3.56	8		

Note: solder end is designed to be soft-soldered into lines using solders with the melting point not exceeding 500°F.
Higher temperature solders will damage the seat material. See installation sheet packaged with valves.

*For detailed operating pressure, refer to pressure temperature chart on page 41.



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

LEAD FREE*
OPTION
AVAILABLE

OXYGEN
SERVICE
OPTION
AVAILABLE

Visit our website for the most current information.

*Weighted average lead content ≤ 0.25%

Bronze Threaded, Solder, NIBCO® Press System and Grooved Ball Valves

NIB-SEAL® Technical Data

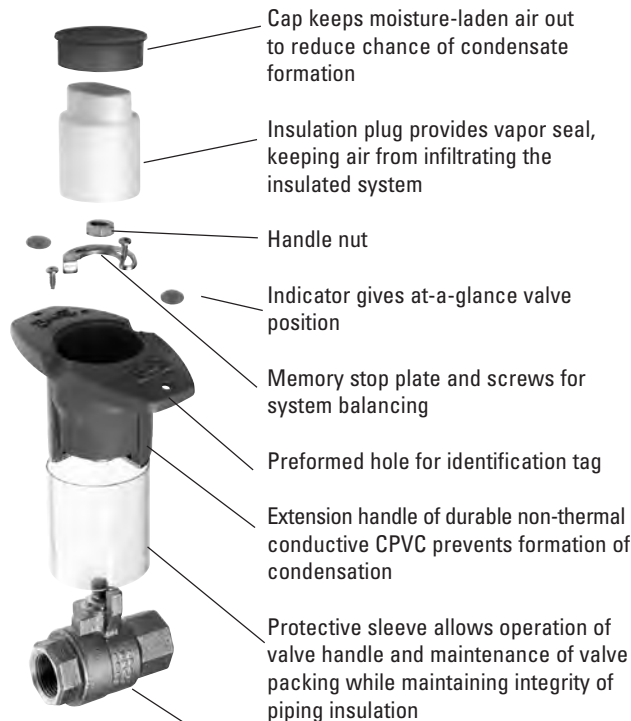
NIBCO bronze ball valves installed with NIB-SEAL® insulated handles are the only approach that keeps your insulated piping system completely intact.

The revolutionary NIB-SEAL insulated handle system used with a NIBCO bronze ball valve, stops condensate, cold. Its unique thermal barrier design keeps moisture from infiltrating your insulated system while preventing thermal energy loss through exposed metal handles.

Designed for new installations or retrofitting existing systems, NIB-SEAL bronze ball valves offer a wide range of advantages for typical commercial HVAC systems as well as industrial applications where insulated piping is desirable.

In addition, the NIB-SEAL handle was tested to UL 2043 and is UL listed for installation in air-handling spaces (plenums).

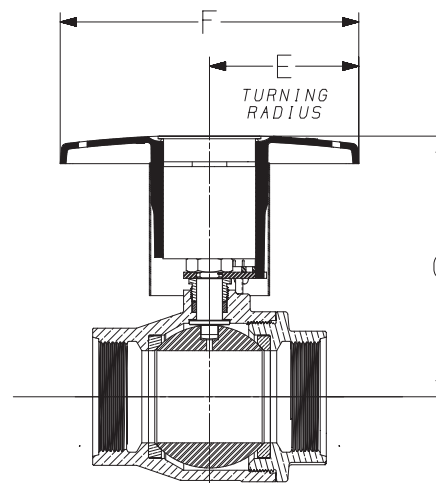
- Protective sleeve provides a stationary surface to affix the insulation, allowing operation of the valve without destroying the integrity of the insulated system.
- High-strength cylindrical handle design features easy access to standard adjustable memory stop for system balancing.
- Cap and insulating plug provide a vapor seal to prevent exchange of air, to maximize the efficiency of your insulated piping system.
- Position indicators allow at-a-glance determination of whether valve is in open or closed position.
- Preformed hole allows for convenient tagging.



Temperature range: 15° F to 250° F

Not intended for steam applications in excess of 15 PSI

NIBCO two-piece or three-piece bronze ball valve is an integral part of the NIB-SEAL valve system



Size	Dimensions					
	Valve Series 580-70*/590*			Valve Series 585-70/595		
	C	E	F	C	E	F
.250	—	—	—	3.750	2.188	4.25
.375	—	—	—	3.750	2.188	4.25
.500	3.750	2.188	4.25	3.750	2.188	4.25
.750	3.750	2.188	4.25	4.000	2.188	4.25
1.000	4.000	2.188	4.25	4.25	2.188	4.25
1.250	4.250	2.188	4.25	5.375	3.375	6.50
1.500	5.375	3.375	6.50	5.563	3.375	6.50
2.000	5.563	3.375	6.50	5.875	3.375	6.50
2.500	5.875	3.375	6.50	—	—	—

*Use 585-70/595 for 1/4" - 1"

For bronze ball valves with factory-installed NIB-SEAL insulated handle, order appropriate NIBCO valve figure number with suffix "NS."

Example: T-585-70-NS, 1/2"

NIB-SEAL on sweat ball valves are shipped unassembled.

Sample Specification

For piping systems requiring up to 2" of insulation, specify a non-conductive CPVC extended-handle bronze ball valve tested to UL 2043, is UL listed for installation in air handling spaces (plenums), that offers a vapor seal, adjustable memory stop, position indicators and convenient valve packing maintenance—all without disturbing the insulation. Specify NIB-SEAL insulated handle.

Example: T-585-70-NS

Visit our website for the most current information.



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Spec Section 221000, 3.2, A, 5.

Throttling Valves

Not Applicable!



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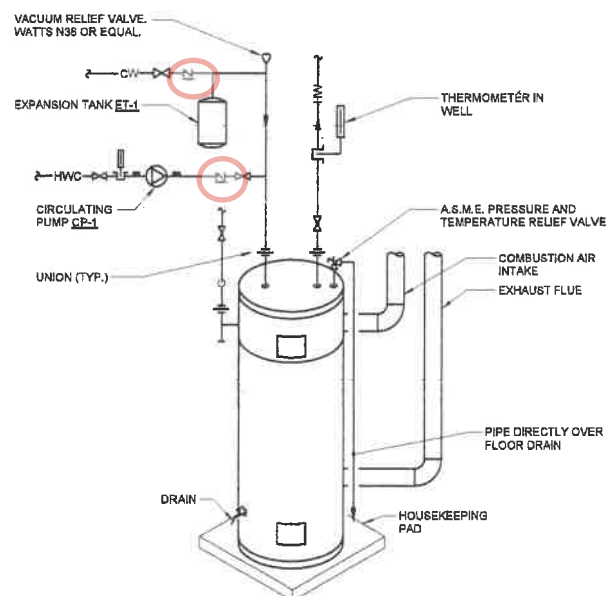
LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 221000, 3.2, A, 6.

Check Valves



2 WATER HEATER DETAIL
NO SCALE

Lead-Free Bronze Check Valves

Features: Silicon Performance Bronze® Alloy • Horizontal Swing • Regrinding Type • Y-Pattern • Renewable Seat and Disc

Approvals: Conforms to MSS SP-139 • NSF/ANSI-61-8 Commercial Hot 180°F (includes annex F and G) and NSF/ANSI-372

Size Range: 1/4" - 2"

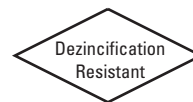
Pressure Rating: 200 PSI Non-Shock Cold Working Pressure

Maximum Pressure / Temperature: 100 PSI at 300° F

Lead-free marking: Double oval in body casting



NSF/ANSI 61
NSF/ANSI 372



T-413-Y-LF
Threaded



S-413-Y-LF
Solder

MATERIAL LIST

PART	SPECIFICATION
1. Hinge Pin	316SS or 304SS
2. Hinge Pin Plug	Silicon Bronze ASTM B283 Alloy C69300
3. Bonnet	Silicon Bronze ASTM B584 Alloy C87850
4. Nut (2)	316SS or 304SS
5. Disc Hanger	Silicon Bronze ASTM B584 Alloy C87850 or MPIF SS-316NI-25
6. Seat Disc	PTFE
7. Seat Disc Washer *	304SS or 316SS
8. Disc Holder	Silicon Bronze ASTM B283 Alloy C69300
9. Body	Silicon Bronze ASTM B584 Alloy C87850

*Sizes 3/4", 1", 1 1/4", 1 1/2" and 2" only.

DIMENSIONS—WEIGHTS—QUANTITIES

SIZE	A	B	C	D	E	F	G	T-413-Y-LF	Master
In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	Lbs. Kg.	Ctn Qty.
1/4	8 2.12	53.85 1.31	33.27 1.37	34.79 0.67	17 1.57	40 1.401	27 0.26	7 0.508	0.23 50
3/8	10 2.12	53.85 1.31	33.27 1.31	33.27 0.67	17 1.40	36 1.401	27 0.35	9 0.478	0.22 50
1/2	15 2.44	62 1.66	42 2.31	59 0.81	21 1.61	41 1.401	33 0.42	11 0.55	0.25 50
3/4	20 2.9	74 1.88	48 2.67	68 1.04	26 2.06	52 1.702	40 0.42	11 0.90	0.41 50
1	25 3.56	90 2.27	58 3.29	84 1.26	32 2.44	62 1.953	52 0.55	14 1.46	0.66 30
1-1/4	32 4.18	106 2.73	69 3.93	100 1.59	40 3.00	76 2.179	60 0.59	15 2.17	0.99 20
1-1/2	40 4.48	114 3.08	78 4.44	113 1.86	47 3.39	86 2.430	70 0.57	13 2.95	1.34 10
2	50 5.29	134 3.84	98 5.48	139 2.29	58 3.74	95 3.067	83 0.76	19 4.79	2.17 10

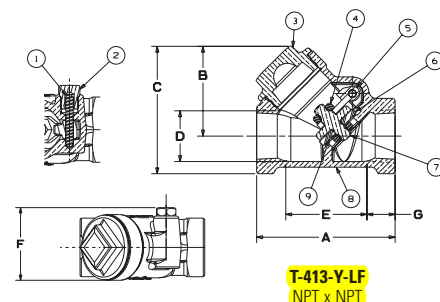
SIZE	A	B	C	D	E	F	G	S-413-Y-LF	Master
In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	Lbs. Kg.	Ctn Qty.
1/4	8 2.12	53.85 1.31	33.27 1.37	34.79 0.67	17 1.57	40 1.401	27 0.26	7 0.508	0.23 50
3/8	10 2.12	53.85 1.31	33.27 1.31	33.27 0.67	17 1.40	36 1.401	27 0.35	9 0.478	0.22 50
1/2	15 2.52	64 1.540	42 1.940	49 0.54	14 1.52	39 1.416	20 0.50	13 0.55	0.25 50
3/4	20 3.34	85 1.861	48 2.410	61 0.78	20 1.84	47 1.717	28 0.75	19 0.88	0.40 50
1	25 4.06	103 2.206	29 2.880	73 1.02	26 2.25	57 1.947	34 0.91	23 1.48	0.67 30
1-1/4	32 4.69	119 2.737	38 3.520	89 1.26	32 2.75	70 2.178	40 0.97	25 2.22	1.01 20
1-1/2	40 5.28	134 3.030	44 3.950	100 1.51	38 3.09	78 2.429	47 1.09	28 3.00	1.36 10
2	50 6.44	164 3.640	98 4.863	123 1.98	50 3.74	95 3.073	62 1.34	34 4.87	2.21 10

NIBCO check valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position. They will operate satisfactorily in a declining plane (no more than 15°). Install check valves as far from pump discharge or line direction change as possible and at a minimum length of 5 times the pipe diameter.

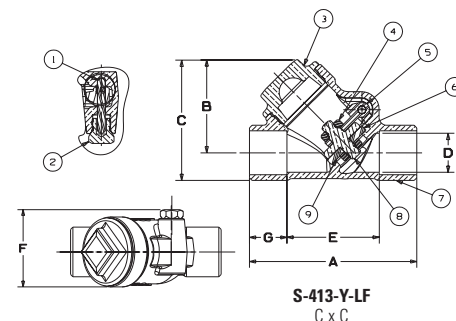
WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Do not use for reciprocating air compressor service.

LEAD-FREE: Weighted average lead content ≤ 0.25%



T-413-Y-LF
NPT x NPT



S-413-Y-LF
C x C

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Spec Section 221000, 3.2, A, 7.

Strainers

**See Submittal Number
221030.001 - Plumbing
Specialties for Strainer
Associated with BFP-1
Backflow Preventer**



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Spec Section 221000, 3.2, B.

Cold Water, Hot Water, and Tempered Water Below Grade

COPPER TUBE FOR PLUMBING AND MECHANICAL APPLICATIONS

Job Name	Maurice Bathhouse	Contractor	Comfort Systems USA (Arkansas), Inc.
Job Location	Hot Springs, Arkansas	Wholesaler	
Engineer	IMEG Corp	Streamline® Rep	

Product Description:

Streamline® CopperTube 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® CopperTube is manufactured from UNS C12200 grade of copper.

Key Specifications:

Streamline® CopperTube (Type K, L, M) shall conform to the NSF/ANSI/CAN 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. Coils are manufactured to 060 temper, and straight lengths are manufactured to H58 temper.

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:

C12200	99.9% Pure Copper (can be used for potable water)
NSF/ANSI/CAN 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)
NSF/ANSI 372	Safe Drinking Water (Lead Content)

Copper [tube or fitting] UNS C12000 has been evaluated by NSF International to NSF/ANSI/CAN 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.



MADE IN USA

A BRAND OF MUELLER INDUSTRIES 

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/BNDL	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 to provide worst case scenario. System designer should account for fitting and joining methodology to determine actual system ratings.

COPPER FITTINGS FOR PLUMBING AND MECHANICAL APPLICATIONS

Job Name Maurice Bathhouse	Contractor Comfort Systems USA (Arkansas), Inc.
Job Location Hot Springs, Arkansas	Wholesaler
Engineer IMEG Corp	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. 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 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)
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.



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P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 221000, 3.2, C.

**Sanitary Waste and Vent – Gravity
Above Grade**

Storm Drain Piping Above Grade

SUBMITTAL FOR CHARLOTTE PIPE® HUBLESS CAST IRON SOIL PIPE AND FITTINGS

Date: 9/8/2025Job Name: Maurice BathhouseEngineer: IMEG CorpLocation: Sanitary Waste and Vent Above Grade (Gravity)Contractor: Comfort Systems USA (Arkansas), Inc.

► Scope:

This specification covers Hubless Cast Iron pipe, fittings, and couplings used in sanitary drain, waste and vent (DWV), sewer, and storm drainage applications. This system is intended for use in non-pressure applications.

► Specification:

Hubless Cast Iron pipe and fittings shall be manufactured from gray cast iron and shall conform to ASTM A 888 and CISPI Standard 301. All pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute®  and listed by NSF® International. Hubless Couplings shall conform to CISPI Standard 310, shall be manufactured in the United States, and be certified by NSF® International. Heavy Duty and Medium Duty couplings shall conform to ASTM C 1540, shall be manufactured in the United States, and shall be used if indicated.

► Installation:

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry Company® and shall conform to all applicable plumbing, fire, and building code requirements. The system shall be hydrostatically tested after installation to 10 ft. of head (4.3 psi maximum). **WARNING!** Never test with or transport/store compressed air or gas in Cast Iron pipe or fittings. Doing so can result in explosive failures and cause severe injury or death.

► Referenced Standards:

ASTM C 564: Rubber Gaskets for Cast Iron Soil Pipe and Fittings
CISPI 301: Hubless Cast Iron Soil Pipe and Fittings
CISPI 310: Hubless Couplings for Cast Iron Soil Pipe and Fittings
ASTM C 1277: Hubless Couplings
ASTM C 1540: Hubless Medium Duty and Heavy Duty Couplings



1/4 Bend

1/8 Bend

Wye

Combination

San Tee

San Cross

Test Tee

Reducer

"P" Trap

Blind Plug

Figure Eight

Two-Way Cleanout

Not all fitting patterns shown

TABLE 1
DIMENSIONS AND TOLERANCES (IN INCHES) OF SPIGOTS
AND BARRELS FOR NO-HUB PIPE AND FITTINGS

	Inside Barrel Diameter	Outside Diameter Barrel	Outside Diameter Spigot	Width Spigot Bead N	Thickness of Barrel	Gasket Positioning Lug
Size	B	J	M	(±.13)	T-Nom. T-Min.	W
1 1/2	1.50 ± .09	1.90 ± .06	1.96 ± .06	.25	.16 .13	1.13
2	1.96 ± .09	2.35 ± .09	2.41 ± .09	.25	.16 .13	1.13
3	2.96 ± .09	3.35 ± .09	3.41 ± .09	.25	.16 .13	1.13
4	3.94 ± .09	4.38 ± .09	4.44 ± .09	.31	.19 .15	1.13
5	4.94 ± .09	5.30 ± .09	5.36 ± .09	.31	.19 .15	1.50
6	5.94 ± .09	6.30 ± .09	6.36 ± .09	.31	.19 .15	1.50
8	7.94 ± .13	8.38 ± .09	8.44 ± .09	.31	.23 .17	2.00
10	10.00 ± .13	10.56 ± .09	10.62 ± .09	.31	.28 .22	2.00
12	11.94 ± .09	12.50 ± .13	12.62 ± .13	.31	.28 .22	2.75
15	15.11 ± .09	15.83 ± .13	16.12 ± .13	.31	.36 .30	2.75

Note: Charlotte Pipe does not recommend or warrant installations joined with unshielded hubless couplings.

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FO-SUB-CI-NH (7-20-16)

SUBMITTAL FOR CHARLOTTE® HEAVY-DUTY "MD" NO-HUB COUPLINGS

Date: 9/8/2025Job Name: Maurice BathhouseLocation: Sanitary Waste and Vent Above Grade (Gravity)Engineer: IMEG CorpContractor: Comfort Systems USA (Arkansas), Inc.

► **Charlotte® Heavy-Duty "MD" (yellow shield) No-Hub Couplings**, manufactured by Ideal Clamp Products, are engineered to connect No-Hub cast iron pipe in applications replacing the less-efficient hub & spigot material. Coupling consists of an elastomeric compound gasket (ASTM C 564) housed inside a 304 stainless steel corrugated shield. Depending on the size of the shield, (4) or (6) 304 stainless steel clamps surround the shield and provide the sealing force. The 5/16" hex-head screws are made from 305 stainless steel. The Charlotte patented Heavy-Duty "MD" No-Hub Couplings are available in sizes ranging from 1½" – 10". The couplings are designed to be torqued to 80 in-lbs. The entire coupling is corrosion resistant. Conforms to ASTM C 1540.

Heavy-Duty "MD" No-Hub Couplings		
Size	Installation Torque Inch Pounds	No. of Clamps Per Coupling
1½"	80	4
2"	80	4
3"	80	4
4"	80	4
5"	80	6
6"	80	6
8"	80	6
10"	80	6

► **The Design:**

The Charlotte Heavy-Duty "MD" No-Hub Couplings are engineered to provide all the extra holding power of a Heavy-Duty coupling without all the extra cost. Conforms to ASTM C 1540.

► **The Gasket:**

Made from high-quality elastomeric compound (ASTM C 564), the Charlotte No-Hub gasket features a pattern of multiple thick sealing sectors and adjacent groove sectors laterally spaced. When the clamps are tightened, this pattern permits the clamping bands and the shield to form a restriction impeding the movement of the shield relative to the gasket. Neoprene has a maximum operating temperature of 212°F and has a maximum joint deflection of 5 degrees.

► **The Shield:**

0.008" thick type 304 stainless steel yellow shield requires less band load to transfer pressure to the gasket, leaving more clamping load in reserve to compress the gasket. The patented, bi-directional corrugations create clamp sealing pressure in both parallel and transverse patterns on the gasket and pipe, thereby avoiding pull-out failures, and providing a positive, reliable seal.

► **The Clamps:**

Heavy-duty 304 stainless steel clamps and 5/16" hex-head 305 screws provide the sealing force. 1½" through 4" couplings use four (4) clamps; 5" through 10" couplings use six (6) clamps. The entire assembly is corrosion resistant.





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P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 221000, 3.2, D.

Sanitary Indirect Drain Above Grade

SUBMITTAL FOR CHARLOTTE PIPE® HUBLESS CAST IRON SOIL PIPE AND FITTINGS

Date: 9/8/2025Job Name: Maurice BathhouseLocation: Sanitary Indirect Drain Above GradeEngineer: IMEG CorpContractor: Comfort Systems USA (Arkansas), Inc.

► Scope:

This specification covers Hubless Cast Iron pipe, fittings, and couplings used in sanitary drain, waste and vent (DWV), sewer, and storm drainage applications. This system is intended for use in non-pressure applications.

► Specification:

Hubless Cast Iron pipe and fittings shall be manufactured from gray cast iron and shall conform to ASTM A 888 and CISPI Standard 301. All pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute®  and listed by NSF® International. Hubless Couplings shall conform to CISPI Standard 310, shall be manufactured in the United States, and be certified by NSF® International. Heavy Duty and Medium Duty couplings shall conform to ASTM C 1540, shall be manufactured in the United States, and shall be used if indicated.

► Installation:

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry Company® and shall conform to all applicable plumbing, fire, and building code requirements. The system shall be hydrostatically tested after installation to 10 ft. of head (4.3 psi maximum). **WARNING!** Never test with or transport/store compressed air or gas in Cast Iron pipe or fittings. Doing so can result in explosive failures and cause severe injury or death.

► Referenced Standards:

ASTM C 564: Rubber Gaskets for Cast Iron Soil Pipe and Fittings
CISPI 301: Hubless Cast Iron Soil Pipe and Fittings
CISPI 310: Hubless Couplings for Cast Iron Soil Pipe and Fittings
ASTM C 1277: Hubless Couplings
ASTM C 1540: Hubless Medium Duty and Heavy Duty Couplings



1/4 Bend

1/8 Bend

Wye

Combination

San Tee

San Cross

Test Tee

Reducer

"P" Trap

Blind Plug

Figure Eight

Two-Way Cleanout

Not all fitting patterns shown

TABLE 1
DIMENSIONS AND TOLERANCES (IN INCHES) OF SPIGOTS
AND BARRELS FOR NO-HUB PIPE AND FITTINGS

Size	Inside Barrel Diameter	Outside Diameter Barrel	Outside Diameter Spigot	Width Spigot Bead N	Thickness of Barrel	Gasket Positioning Lug	
	B	J	M	(± .13)	T-Nom.	T-Min.	W
1 1/2	1.50 ± .09	1.90 ± .06	1.96 ± .06	.25	.16	.13	1.13
2	1.96 ± .09	2.35 ± .09	2.41 ± .09	.25	.16	.13	1.13
3	2.96 ± .09	3.35 ± .09	3.41 ± .09	.25	.16	.13	1.13
4	3.94 ± .09	4.38 ± .09	4.44 ± .09	.31	.19	.15	1.13
5	4.94 ± .09	5.30 ± .09 - .05	5.36 ± .09	.31	.19	.15	1.50
6	5.94 ± .09	6.30 ± .09 - .05	6.36 ± .09	.31	.19	.15	1.50
8	7.94 ± .13	8.38 ± .09	8.44 ± .09	.31	.23	.17	2.00
10	10.00 ± .13	10.56 ± .09	10.62 ± .09	.31	.28	.22	2.00
12	11.94 ± .09	12.50 ± .13	12.62 ± .13	.31	.28	.22	2.75
15	15.11 ± .09	15.83 ± .13	16.12 ± .13	.31	.36	.30	2.75

Note: Charlotte Pipe does not recommend or warrant installations joined with unshielded hubless couplings.

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FO-SUB-CI-NH (7-20-16)

SUBMITTAL FOR CHARLOTTE® HEAVY-DUTY "MD" NO-HUB COUPLINGS

Date: 9/8/2025Job Name: Maurice BathhouseEngineer: IMEG CorpLocation: Sanitary Indirect Drain Above GradeContractor: Comfort Systems USA (Arkansas), Inc.

► **Charlotte® Heavy-Duty "MD" (yellow shield) No-Hub Couplings**, manufactured by Ideal Clamp Products, are engineered to connect No-Hub cast iron pipe in applications replacing the less-efficient hub & spigot material. Coupling consists of an elastomeric compound gasket (ASTM C 564) housed inside a 304 stainless steel corrugated shield. Depending on the size of the shield, (4) or (6) 304 stainless steel clamps surround the shield and provide the sealing force. The 5/16" hex-head screws are made from 305 stainless steel. The Charlotte patented Heavy-Duty "MD" No-Hub Couplings are available in sizes ranging from 1½" – 10". The couplings are designed to be torqued to 80 in-lbs. The entire coupling is corrosion resistant. Conforms to ASTM C 1540.

Heavy-Duty "MD" No-Hub Couplings

Size	Installation Torque Inch Pounds	No. of Clamps Per Coupling
1½"	80	4
2"	80	4
3"	80	4
4"	80	4
5"	80	6
6"	80	6
8"	80	6
10"	80	6

► **The Design:**

The Charlotte Heavy-Duty "MD" No-Hub Couplings are engineered to provide all the extra holding power of a Heavy-Duty coupling without all the extra cost. Conforms to ASTM C 1540.

► **The Gasket:**

Made from high-quality elastomeric compound (ASTM C 564), the Charlotte No-Hub gasket features a pattern of multiple thick sealing sectors and adjacent groove sectors laterally spaced. When the clamps are tightened, this pattern permits the clamping bands and the shield to form a restriction impeding the movement of the shield relative to the gasket. Neoprene has a maximum operating temperature of 212°F and has a maximum joint deflection of 5 degrees.

► **The Shield:**

0.008" thick type 304 stainless steel yellow shield requires less band load to transfer pressure to the gasket, leaving more clamping load in reserve to compress the gasket. The patented, bi-directional corrugations create clamp sealing pressure in both parallel and transverse patterns on the gasket and pipe, thereby avoiding pull-out failures, and providing a positive, reliable seal.

► **The Clamps:**

Heavy-duty 304 stainless steel clamps and 5/16" hex-head 305 screws provide the sealing force. 1½" through 4" couplings use four (4) clamps; 5" through 10" couplings use six (6) clamps. The entire assembly is corrosion resistant.





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P.O. Box 16620

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Phone 501-834-3320

Fax 501-834-5416

Spec Section 221000, 3.2, E.

**Sanitary Waste and Vent (Inside
Building) Below Grade**

Storm Piping Below Grade

SUBMITTAL FOR CHARLOTTE PIPE® SERVICE CAST IRON SOIL PIPE AND FITTINGS

Date: 9/8/2025

Job Name: Maurice Bathhouse

Location: Sanitary Waste and Vent Below Grade (Inside Building)

Engineer: IMEG Corp

Contractor: Comfort Systems USA (Arkansas), Inc.

Scope:

This specification covers Service Cast Iron pipe, fittings, and compression gaskets used in sanitary drain, waste and vent (DWV), sewer, and storm drainage applications. This system is intended for use in non-pressure applications.

Specification:

Pipe and fittings shall comply with ASTM A 74. Compression gaskets shall comply with ASTM C 564. All pipe and fitting shall be made in the United States, and marked with the collective trademark of the Cast Iron Soil Pipe Institute, . Service cast iron pipe and fittings are listed by NSF® International to the UP Code.

Installation:

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry Company® and shall conform to all applicable plumbing, fire, and building code requirements. The system shall be hydrostatically tested after installation to 10 ft. of head (4.3 psi maximum).

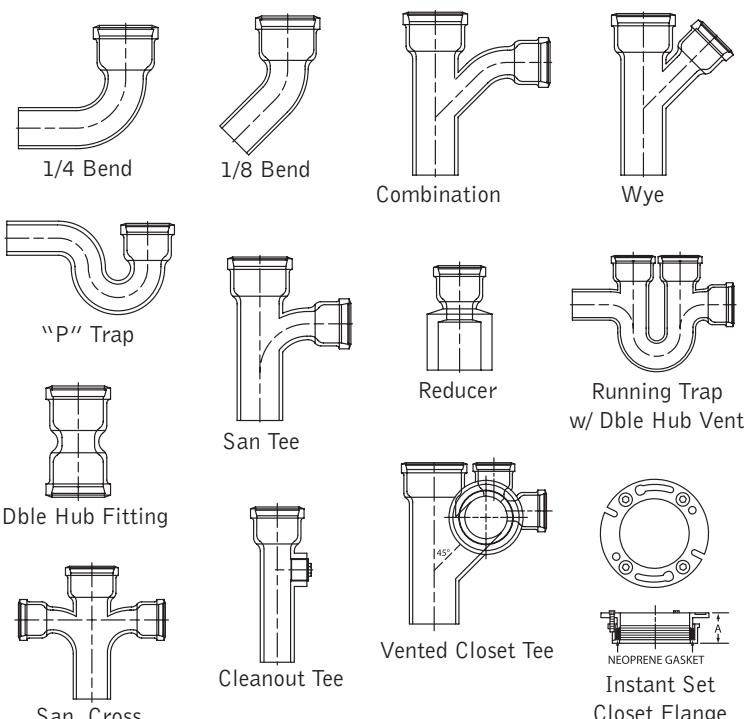
WARNING! Never test with or transport/store compressed air or gas in Cast Iron pipe or fittings. Doing so can result in explosive failures and cause severe injury or death.

Referenced Standards:

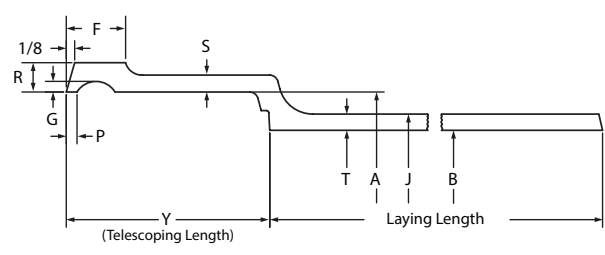
ASTM A 74: Cast Iron Soil Pipe and Fittings

ASTM C 564: Rubber Gaskets for Cast Iron Soil Pipe and Fittings





Not all fitting patterns shown



Size	PIPE - SERVICE				
	Telescoping Length Y	Hub I.D. A	Barrel O.D. J	Barrel I.D. B	Nominal Thickness T
2"	2.50	2.94	2.30	1.96	0.17
3"	2.75	3.94	3.30	2.96	0.17
4"	3.00	4.94	4.30	3.94	0.18
5"	3.00	5.94	5.30	4.94	0.18
6"	3.00	6.94	6.30	5.94	0.18
8"	3.50	9.25	8.38	7.94	0.23
10"	3.50	11.38	10.50	9.94	0.28
12"	4.24	13.50	12.50	11.94	0.28
15"	4.25	16.95	15.88	15.16	0.36

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P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 221000, 3.2, F.

**Sanitary Waste and Vent (Outside
Building) Below Grade**

**Not Applicable to Comfort Systems USA
Scope-of-Work!)**



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Phone 501-834-3320

Fax 501-834-5416

Spec Section 221000, 3.2, G.

Sanitary Waste (Pumped) (Inside Building) Below Grade

SUBMITTAL FOR CHARLOTTE PIPE® PVC SCHEDULE 40 SOLID WALL PIPE AND PVC DWV FITTING SYSTEM

Date: 9/8/2025

Job Name: Maurice Bathhouse

Location: Sanitary Waste (Pumped) Below Grade (Inside Building)

Engineer: IMEG Corp

Contractor: Comfort Systems USA (Arkansas), Inc.

Scope:

This specification covers PVC Schedule 40 solid wall pipe and PVC 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 PVC (polyvinyl chloride) vinyl compounds with a cell class of 12454 as identified in ASTM D 1784. PVC Schedule 40 pipe shall be Iron Pipe Size (IPS) conforming to ASTM D 1785 and ASTM D 2665. Injection molded PVC DWV fittings shall conform to ASTM D 2665. Fabricated PVC DWV fittings shall conform to ASTM F 1866. 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:

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 in a two-step process with primer conforming to ASTM F 656 and solvent cement conforming to ASTM D 2564. The system shall be protected from chemical agents, fire-stopping materials, thread sealant, plasticized-vinyl products or other aggressive chemical agents not compatible with PVC compounds. The system shall be hydrostatically tested after installation.

WARNING! Never test with or transport/store compressed air or gas in PVC pipe or fittings. Doing so can result in explosive failures and cause severe injury or death.

Referenced Standards:

- ASTM D 1784: Rigid Vinyl Compounds
- ASTM D 1785: PVC Plastic Pipe, Schedule 40
- ASTM D 2665: PVC Drain, Waste and Vent Pipe and Fittings
- ASTM D 2564: Solvent Cements for PVC 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
- ASTM F 1866: Fabricated PVC DWV Fittings
- NSF Standard 14: Plastic Piping Components and Related Materials



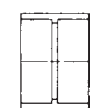
PVC Schedule 40 DWV Pipe

PVC Schedule 40 DWV Pipe

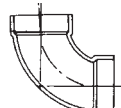
PVC SCHEDULE 40 (WHITE)		PLAIN END		PVC 1120		ASTM D 2665
PART NO.	NOM. SIZE	UPC # 611942-	QTY. PER SKID	AVG. OD (IN.)	MIN. WALL (IN.)	WT. PER 100 FT. (LBS.)
PVC 7100*	1 1/4" x 10'	03945	2120'	1.660	.140	42.4
PVC 7100*	1 1/4" x 20'	03946	4240'	1.660	.140	42.4
PVC 7112*	1 1/2" x 10'	03947	1650'	1.900	.145	51.8
PVC 7112*	1 1/2" x 20'	03948	3300'	1.900	.145	51.8
PVC 7200*	2" x 10'	03949	1110'	2.375	.154	69.5
PVC 7200*	2" x 20'	03950	2220'	2.375	.154	69.5
PVC 7300*	3" x 10'	03951	1130'	3.500	.216	144.2
PVC 7300*	3" x 20'	03952	1000'	3.500	.216	144.2
PVC 7400†	4" x 10'	03953	670'	4.500	.237	205.5
PVC 7400†	4" x 20'	03954	1340'	4.500	.237	205.5
PVC 7500†	5" x 20'	04837	760'	5.563	.258	272.5
PVC 7600†	6" x 10'	03955	330'	6.625	.280	361.2
PVC 7600†	6" x 20'	03956	660'	6.625	.280	361.2
PVC 7800†	8" x 10'	13087	140'	8.625	.322	543.6
PVC 7800†	8" x 20'	03958	280'	8.625	.322	543.6
PVC 7910†	10" x 20'	03959	220'	10.750	.365	770.7
PVC 7912†	12" x 20'	03961	120'	12.750	.406	1019.0
PVC 7914†	14" x 20'	04862	60'	14.000	.437	1205.0
PVC 7916†	16" x 20'	04918	60'	16.000	.500	1575.7

* Dual Marked ASTM D 1785 & ASTM D 2665.

† Triple Marked ASTM D 1785 & ASTM D 2665 & ASTM F 480.



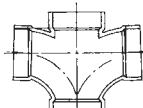
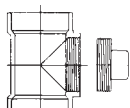
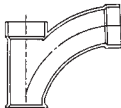
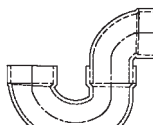
Coupling



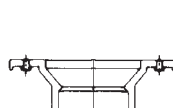
Quarter Bend



Eighth Bend


 Double
Sanitary Tee

 Cleanout Tee
w/Plug

 Combination Wye
& Eighth Bend


P-Trap



Closet Flange

Not all fitting patterns shown

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P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 221000, 3.2, H.

Sanitary Waste (Pumped) (Inside Building) Above Grade

COPPER TUBE FOR PLUMBING AND MECHANICAL APPLICATIONS

Job Name	Maurice Bathhouse	Contractor	Comfort Systems USA (Arkansas), Inc.
Job Location	Hot Springs, Arkansas	Wholesaler	
Engineer	IMEG Corp	Streamline® Rep	

Product Description:

Streamline® CopperTube 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® CopperTube is manufactured from UNS C12200 grade of copper.

Key Specifications:

Streamline® CopperTube (Type **K**, L, M) shall conform to the **NSF/ANSI/CAN 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. Coils are manufactured to 060 temper, and straight lengths are manufactured to H58 temper.

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:

C12200	99.9% Pure Copper (can be used for potable water)
NSF/ANSI/CAN 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)
NSF/ANSI 372	Safe Drinking Water (Lead Content)

Copper [tube or fitting] UNS C12000 has been evaluated by NSF International to NSF/ANSI/CAN 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.



MADE IN USA

A BRAND OF MUELLER INDUSTRIES 

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/BNDL	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 to provide worst case scenario. System designer should account for fitting and joining methodology to determine actual system ratings.

COPPER FITTINGS FOR PLUMBING AND MECHANICAL APPLICATIONS

Job Name Maurice Bathhouse	Contractor Comfort Systems USA (Arkansas), Inc.
Job Location Hot Springs, Arkansas	Wholesaler
Engineer IMEG Corp	Streamline® Rep

Product Description:

Streamline® Wrot Copper Pressure and DWV fittings for use in plumbing or mechanical applications. Available sizes ranging from ¼" to 8" in diameter. 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 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)
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.

Lead-Free Bronze Ball Valves

Features: Silicon Performance Bronze® Alloy • Two-Piece Body • Full Port • Blowout-Proof Stem

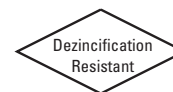
Approvals: MSS SP-110/145 • IAPMO/ANSI Z1157 •
NSF/ANSI 61/372-8 Commercial Hot 180°F

Size range: ¼" - 3"

Pressure rating: 600 PSI non-shock cold working pressure

Maximum pressure / temperature: 100 PSI at 300° F

Lead-free markings: Double oval in body casting, white handle and blue hang tag



MATERIAL LIST

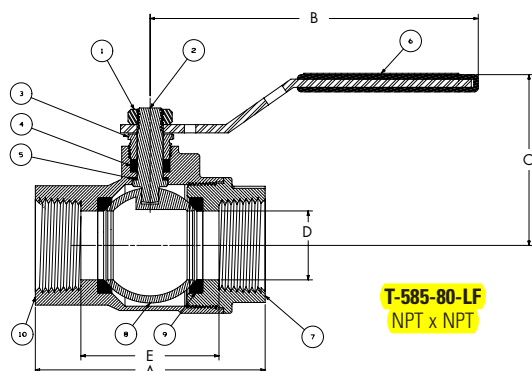
PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Stem	Silicon Bronze ASTM B371 Alloy C69300
3. Pack Gland	Brass ASTM B16 Alloy C36000
4. Packing, Stem	Virgin PTFE
5. Washer, Thrust	Reinforced PTFE
6. Handle	Zinc Plated Steel Clear Chromate Plastisol Coated
7. End Piece	Silicon Bronze ASTM B584 Alloy C87600
8. Seat Ring (2)	Reinforced PTFE
9. Ball	DZR Brass SAE J461 C46500 (¼"-1") Stainless Steel ASTM A276 S31600 or ASTM A351CF8M (1¼"-3")
10. Body	Silicon Bronze ASTM B584 Alloy C87600



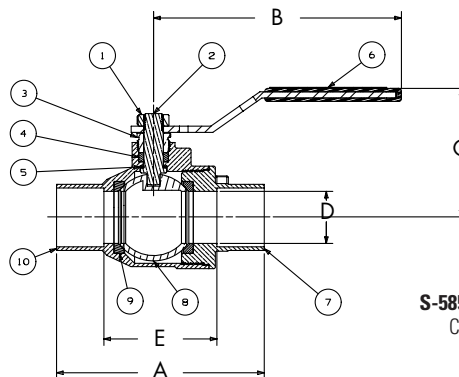
T-585-80-LF
Threaded



S-585-80-LF
Solder



T-585-80-LF
NPT x NPT

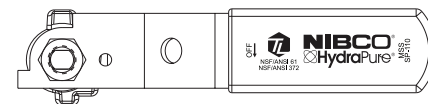


S-585-80-LF
C x C

DIMENSIONS—WEIGHTS—QUANTITIES

Dimensions

T-585-80-LF				S-585-80-LF				T-585-80-LF				S-585-80-LF								Master Ctn. Qty.
SIZE		A		A		B		C		D		E		E		T-585-80-LF		S-585-80-LF		
In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	Lbs.	Kg.	Lbs.	Kg.	
¼	8	1.78	45	1.83	46	3.96	101	1.86	47	0.31	8	1.00	25	1.21	31	0.43	0.19	0.40	0.18	24
⅜	10	1.79	45	1.97	50	3.96	101	1.85	47	0.38	10	1.80	46	1.21	31	0.44	0.20	0.41	0.19	24
½	15	2.23	57	2.4	61	3.96	101	1.96	50	0.5	13	1.16	29	1.40	36	0.65	0.30	0.56	0.25	80
¾	20	2.78	71	3.16	80	4.76	121	2.28	58	0.75	19	1.68	43	1.66	42	1.20	0.55	1.02	0.46	60
1	25	3.34	85	3.99	101	4.76	121	2.48	63	1	25	2.00	51	2.17	55	1.63	0.74	1.50	0.68	40
1¼	32	3.75	95	4.13	105	6.75	171	3.10	79	1.25	32	2.39	61	2.19	56	2.87	1.30	2.41	1.09	20
1½	40	4.26	108	4.97	126	6.75	171	3.32	84	1.5	38	2.89	73	2.79	71	3.83	1.74	3.62	1.64	10
2	50	4.80	122	6.02	153	6.75	171	3.56	90	2	51	3.40	86	3.34	85	5.57	2.53	5.54	2.51	6
2½	65	6.00	152	7.21	183	8.06	205	4.40	112	2.50	64	4.12	105	4.27	108	13.70	6.21	12.80	5.80	2
3	76	6.5	165	8	202	8.06	205	4.65	118	2.95	75	4.46	113	4.62	117	14.30	6.49	12.50	5.67	2



Handle Markings

Handle Options:

- Stainless Steel Lever
- NIB-Seal®
- NIB-Seal® Locking Lever
- Locking Lever
- Stainless Steel Locking Lever
- Memory Stop
- Extended Lever w/ Memory Stop
- Round
- Wing
- Horizontal and Vertical Chain



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

LEAD-FREE: Weighted average lead content ≤ 0.25%

Lead-Free Bronze Check Valves

Features: Silicon Performance Bronze® Alloy • Horizontal Swing • Regrinding Type • Y-Pattern • Renewable Seat and Disc

Approvals: Conforms to MSS SP-139 • NSF/ANSI-61-8 Commercial Hot 180°F (includes annex F and G) and NSF/ANSI-372

Size Range: 1/4" - 2"

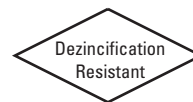
Pressure Rating: 200 PSI Non-Shock Cold Working Pressure

Maximum Pressure / Temperature: 100 PSI at 300° F

Lead-free marking: Double oval in body casting



NSF/ANSI 61
NSF/ANSI 372



T-413-Y-LF
Threaded



S-413-Y-LF
Solder

MATERIAL LIST

PART	SPECIFICATION
1. Hinge Pin	316SS or 304SS
2. Hinge Pin Plug	Silicon Bronze ASTM B283 Alloy C69300
3. Bonnet	Silicon Bronze ASTM B584 Alloy C87850
4. Nut (2)	316SS or 304SS
5. Disc Hanger	Silicon Bronze ASTM B584 Alloy C87850 or MPIF SS-316NI-25
6. Seat Disc	PTFE
7. Seat Disc Washer *	304SS or 316SS
8. Disc Holder	Silicon Bronze ASTM B283 Alloy C69300
9. Body	Silicon Bronze ASTM B584 Alloy C87850

*Sizes 3/4", 1", 1 1/4", 1 1/2" and 2" only.

DIMENSIONS—WEIGHTS—QUANTITIES

SIZE	A	B	C	D	E	F	G	T-413-Y-LF	Master
In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	Lbs. Kg.	Ctn Qty.
1/4	8 2.12	53.85 1.31	33.27 1.37	34.79 0.67	17 1.57	40 1.401	27 0.26	7 0.508	0.23 50
3/8	10 2.12	53.85 1.31	33.27 1.31	33.27 0.67	17 1.40	36 1.401	27 0.35	9 0.478	0.22 50
1/2	15 2.44	62 1.66	42 2.31	59 0.81	21 1.61	41 1.401	33 0.42	11 0.55	0.25 50
3/4	20 2.9	74 1.88	48 2.67	68 1.04	26 2.06	52 1.702	40 0.42	11 0.90	0.41 50
1	25 3.56	90 2.27	58 3.29	84 1.26	32 2.44	62 1.953	52 0.55	14 1.46	0.66 30
1-1/4	32 4.18	106 2.73	69 3.93	100 1.59	40 3.00	76 2.179	60 0.59	15 2.17	0.99 20
1-1/2	40 4.48	114 3.08	78 4.44	113 1.86	47 3.39	86 2.430	70 0.57	13 2.95	1.34 10
2	50 5.29	134 3.84	98 5.48	139 2.29	58 3.74	95 3.067	83 0.76	19 4.79	2.17 10

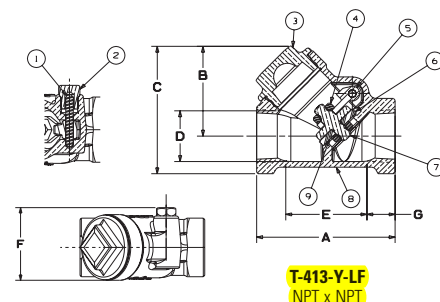
SIZE	A	B	C	D	E	F	G	S-413-Y-LF	Master
In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	Lbs. Kg.	Ctn Qty.
1/4	8 2.12	53.85 1.31	33.27 1.37	34.79 0.67	17 1.57	40 1.401	27 0.26	7 0.508	0.23 50
3/8	10 2.12	53.85 1.31	33.27 1.31	33.27 0.67	17 1.40	36 1.401	27 0.35	9 0.478	0.22 50
1/2	15 2.52	64 1.540	42 1.940	49 0.54	14 1.52	39 1.416	20 0.50	13 0.55	0.25 50
3/4	20 3.34	85 1.861	48 2.410	61 0.78	20 1.84	47 1.717	28 0.75	19 0.88	0.40 50
1	25 4.06	103 2.206	29 2.880	73 1.02	26 2.25	57 1.947	34 0.91	23 1.48	0.67 30
1-1/4	32 4.69	119 2.737	38 3.520	89 1.26	32 2.75	70 2.178	40 0.97	25 2.22	1.01 20
1-1/2	40 5.28	134 3.030	44 3.950	100 1.51	38 3.09	78 2.429	47 1.09	28 3.00	1.36 10
2	50 6.44	164 3.640	98 4.863	123 1.98	50 3.74	95 3.073	62 1.34	34 4.87	2.21 10

NIBCO check valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position. They will operate satisfactorily in a declining plane (no more than 15°). Install check valves as far from pump discharge or line direction change as possible and at a minimum length of 5 times the pipe diameter.

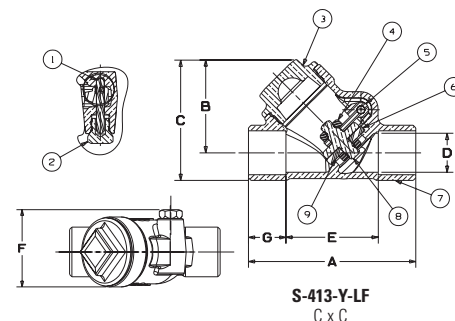
WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Do not use for reciprocating air compressor service.

LEAD-FREE: Weighted average lead content ≤ 0.25%



T-413-Y-LF
NPT x NPT



S-413-Y-LF
C x C



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 221000, 3.2, I.

Storm Drain (Pumped) (Inside Building) Above Grade

COPPER TUBE FOR PLUMBING AND MECHANICAL APPLICATIONS

Job Name	Maurice Bathhouse	Contractor	Comfort Systems USA (Arkansas), Inc.
Job Location	Hot Springs, Arkansas	Wholesaler	
Engineer	IMEG Corp	Streamline® Rep	

Product Description:

Streamline® CopperTube 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® CopperTube is manufactured from UNS C12200 grade of copper.

Key Specifications:

Streamline® CopperTube (Type **K**, L, M) shall conform to the **NSF/ANSI/CAN 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. Coils are manufactured to 060 temper, and straight lengths are manufactured to H58 temper.

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:

C12200	99.9% Pure Copper (can be used for potable water)
NSF/ANSI/CAN 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)
NSF/ANSI 372	Safe Drinking Water (Lead Content)

Copper [tube or fitting] UNS C12000 has been evaluated by NSF International to NSF/ANSI/CAN 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.



MADE IN USA

A BRAND OF MUELLER INDUSTRIES 

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/BNDL	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 to provide worst case scenario. System designer should account for fitting and joining methodology to determine actual system ratings.

COPPER FITTINGS FOR PLUMBING AND MECHANICAL APPLICATIONS

Job Name Maurice Bathhouse

Contractor Comfort Systems USA (Arkansas), Inc.

Job Location Hot Springs, Arkansas

Wholesaler

Engineer IMEG Corp

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. 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 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)
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.

Lead-Free Bronze Ball Valves

Features: Silicon Performance Bronze® Alloy • Two-Piece Body • Full Port • Blowout-Proof Stem

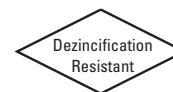
Approvals: MSS SP-110/145 • IAPMO/ANSI Z1157 •
NSF/ANSI 61/372-8 Commercial Hot 180°F

Size range: ¼" - 3"

Pressure rating: 600 PSI non-shock cold working pressure

Maximum pressure / temperature: 100 PSI at 300° F

Lead-free markings: Double oval in body casting, white handle and blue hang tag



MATERIAL LIST

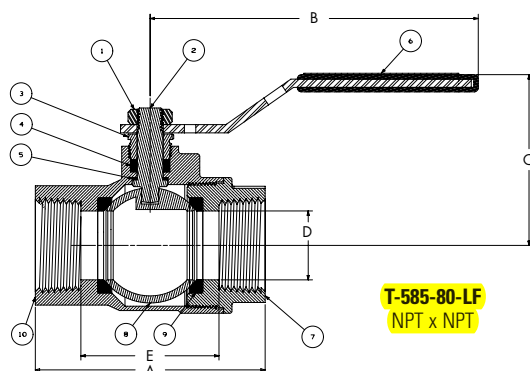
PART	SPECIFICATION
1. Handle Nut	Zinc Plated Steel
2. Stem	Silicon Bronze ASTM B371 Alloy C69300
3. Pack Gland	Brass ASTM B16 Alloy C36000
4. Packing, Stem	Virgin PTFE
5. Washer, Thrust	Reinforced PTFE
6. Handle	Zinc Plated Steel Clear Chromate Plastisol Coated
7. End Piece	Silicon Bronze ASTM B584 Alloy C87600
8. Seat Ring (2)	Reinforced PTFE
9. Ball	DZR Brass SAE J461 C46500 (¼"-1") Stainless Steel ASTM A276 S31600 or ASTM A351CF8M (1¼"-3")
10. Body	Silicon Bronze ASTM B584 Alloy C87600



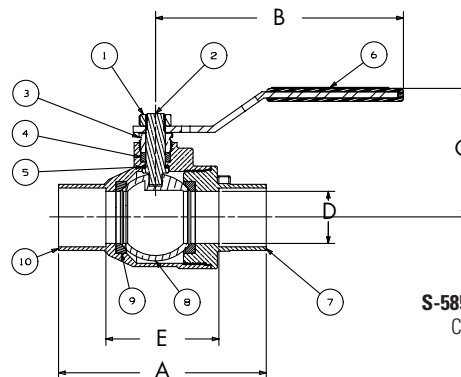
T-585-80-LF
Threaded



S-585-80-LF
Solder



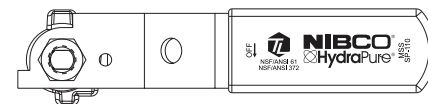
T-585-80-LF
NPT x NPT



S-585-80-LF
C x C

DIMENSIONS—WEIGHTS—QUANTITIES

Dimensions																			
		T-585-80-LF				S-585-80-LF				T-585-80-LF				S-585-80-LF					
SIZE		A	A	B	C	D	E	E		A	A	B	C	D	E	E			
In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	Lbs.	Kg.
¼	8	1.78	45	1.83	46	3.96	101	1.86	47	0.31	8	1.00	25	1.21	31	0.43	0.19	0.40	0.18
3/8	10	1.79	45	1.97	50	3.96	101	1.85	47	0.38	10	1.80	46	1.21	31	0.44	0.20	0.41	0.19
½	15	2.23	57	2.4	61	3.96	101	1.96	50	0.5	13	1.16	29	1.40	36	0.65	0.30	0.56	0.25
¾	20	2.78	71	3.16	80	4.76	121	2.28	58	0.75	19	1.68	43	1.66	42	1.20	0.55	1.02	0.46
1	25	3.34	85	3.99	101	4.76	121	2.48	63	1	25	2.00	51	2.17	55	1.63	0.74	1.50	0.68
1¼	32	3.75	95	4.13	105	6.75	171	3.10	79	1.25	32	2.39	61	2.19	56	2.87	1.30	2.41	1.09
1½	40	4.26	108	4.97	126	6.75	171	3.32	84	1.5	38	2.89	73	2.79	71	3.83	1.74	3.62	1.64
2	50	4.80	122	6.02	153	6.75	171	3.56	90	2	51	3.40	86	3.34	85	5.57	2.53	5.54	2.51
2½	65	6.00	152	7.21	183	8.06	205	4.40	112	2.50	64	4.12	105	4.27	108	13.70	6.21	12.80	5.80
3	76	6.5	165	8	202	8.06	205	4.65	118	2.95	75	4.46	113	4.62	117	14.30	6.49	12.50	5.67



Handle Markings

Handle Options:

- Stainless Steel Lever
- NIB-Seal®
- NIB-Seal® Locking Lever
- Locking Lever
- Stainless Steel Locking Lever
- Memory Stop
- Extended Lever w/ Memory Stop
- Round
- Wing
- Horizontal and Vertical Chain



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

LEAD-FREE: Weighted average lead content ≤ 0.25%

Lead-Free Bronze Check Valves

Features: Silicon Performance Bronze® Alloy • Horizontal Swing • Regrinding Type • Y-Pattern • Renewable Seat and Disc

Approvals: Conforms to MSS SP-139 • NSF/ANSI-61-8 Commercial Hot 180°F (includes annex F and G) and NSF/ANSI-372

Size Range: 1/4" - 2"

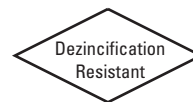
Pressure Rating: 200 PSI Non-Shock Cold Working Pressure

Maximum Pressure / Temperature: 100 PSI at 300° F

Lead-free marking: Double oval in body casting



NSF/ANSI 61
NSF/ANSI 372



T-413-Y-LF
Threaded



S-413-Y-LF
Solder

MATERIAL LIST

PART	SPECIFICATION
1. Hinge Pin	316SS or 304SS
2. Hinge Pin Plug	Silicon Bronze ASTM B283 Alloy C69300
3. Bonnet	Silicon Bronze ASTM B584 Alloy C87850
4. Nut (2)	316SS or 304SS
5. Disc Hanger	Silicon Bronze ASTM B584 Alloy C87850 or MPIF SS-316NI-25
6. Seat Disc	PTFE
7. Seat Disc Washer *	304SS or 316SS
8. Disc Holder	Silicon Bronze ASTM B283 Alloy C69300
9. Body	Silicon Bronze ASTM B584 Alloy C87850

*Sizes 3/4", 1", 1 1/4", 1 1/2" and 2" only.

DIMENSIONS—WEIGHTS—QUANTITIES

SIZE	A	B	C	D	E	F	G	T-413-Y-LF	Master
In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	Lbs. Kg.	Ctn Qty.
1/4	8 2.12	53.85 1.31	33.27 1.37	34.79 0.67	17 1.57	40 1.401	27 0.26	7 0.508	0.23 50
3/8	10 2.12	53.85 1.31	33.27 1.31	33.27 0.67	17 1.40	36 1.401	27 0.35	9 0.478	0.22 50
1/2	15 2.44	62 1.66	42 2.31	59 0.81	21 1.61	41 1.401	33 0.42	11 0.55	0.25 50
3/4	20 2.9	74 1.88	48 2.67	68 1.04	26 2.06	52 1.702	40 0.42	11 0.90	0.41 50
1	25 3.56	90 2.27	58 3.29	84 1.26	32 2.44	62 1.953	52 0.55	14 1.46	0.66 30
1-1/4	32 4.18	106 2.73	69 3.93	100 1.59	40 3.00	76 2.179	60 0.59	15 2.17	0.99 20
1-1/2	40 4.48	114 3.08	78 4.44	113 1.86	47 3.39	86 2.430	70 0.57	13 2.95	1.34 10
2	50 5.29	134 3.84	98 5.48	139 2.29	58 3.74	95 3.067	83 0.76	19 4.79	2.17 10

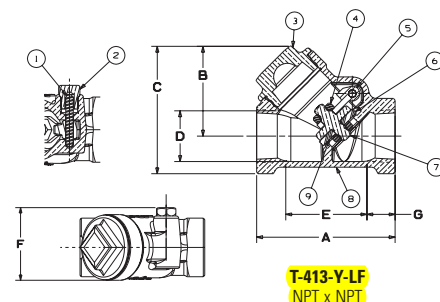
SIZE	A	B	C	D	E	F	G	S-413-Y-LF	Master
In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	Lbs. Kg.	Ctn Qty.
1/4	8 2.12	53.85 1.31	33.27 1.37	34.79 0.67	17 1.57	40 1.401	27 0.26	7 0.508	0.23 50
3/8	10 2.12	53.85 1.31	33.27 1.31	33.27 0.67	17 1.40	36 1.401	27 0.35	9 0.478	0.22 50
1/2	15 2.52	64 1.540	42 1.940	49 0.54	14 1.52	39 1.416	20 0.50	13 0.55	0.25 50
3/4	20 3.34	85 1.861	48 2.410	61 0.78	20 1.84	47 1.717	28 0.75	19 0.88	0.40 50
1	25 4.06	103 2.206	29 2.880	73 1.02	26 2.25	57 1.947	34 0.91	23 1.48	0.67 30
1-1/4	32 4.69	119 2.737	38 3.520	89 1.26	32 2.75	70 2.178	40 0.97	25 2.22	1.01 20
1-1/2	40 5.28	134 3.030	44 3.950	100 1.51	38 3.09	78 2.429	47 1.09	28 3.00	1.36 10
2	50 6.44	164 3.640	98 4.863	123 1.98	50 3.74	95 3.073	62 1.34	34 4.87	2.21 10

NIBCO check valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position. They will operate satisfactorily in a declining plane (no more than 15°). Install check valves as far from pump discharge or line direction change as possible and at a minimum length of 5 times the pipe diameter.

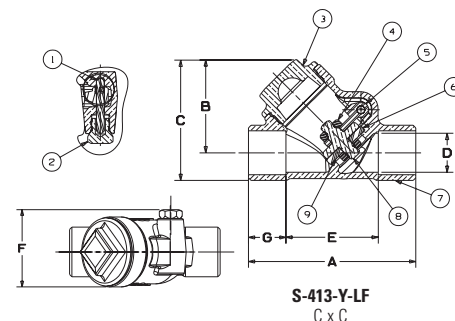
WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Do not use for reciprocating air compressor service.

LEAD-FREE: Weighted average lead content ≤ 0.25%



T-413-Y-LF
NPT x NPT



S-413-Y-LF
C x C



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 221000, 3.2, J.

Condensate/Equipment Drainage

COPPER TUBE FOR PLUMBING AND MECHANICAL APPLICATIONS

Job Name Maurice Bathhouse

Contractor Comfort Systems USA (Arkansas), inc.

Job Location Hot Springs, Arkansas

Wholesaler

Engineer IMEG Corp

Streamline[®] Rep

Product Description:

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

Key Specifications:

Streamline[®] CopperTube (Type K, L, M) shall conform to the NSF/ANSI/CAN 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. Coils are manufactured to 060 temper, and straight lengths are manufactured to H58 temper.

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:

C12200	99.9% Pure Copper (can be used for potable water)
NSF/ANSI/CAN 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)
NSF/ANSI 372	Safe Drinking Water (Lead Content)

Copper [tube or fitting] UNS C12000 has been evaluated by NSF International to NSF/ANSI/CAN 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.



MADE IN USA

A BRAND OF MUELLER INDUSTRIES 

COPPER FITTINGS FOR PLUMBING AND MECHANICAL APPLICATIONS

Job Name Maurice Bathhouse

Contractor Comfort Systems USA (Arkansas), Inc.

Job Location Hot Springs, Arkansas

Wholesaler

Engineer IMEG Corp

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. 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 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 B16.22 and MSS SP104. Wrot DWV copper fittings shall be made to meet ASME B16.29. 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)
C12200	99.9% pure copper
ASME B16.22	Wrot Copper and Copper Alloy Solder Joint Pressure Fittings
MSS SP104	Wrot Copper Solder and Joint Pressure Fittings
ASME B16.29	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.