



UTILITY ENGINEERING STANDARDS  
PIPING MATERIALS  
WATER DISTRIBUTION SYSTEM  
RELEASED FOR DISTRIBUTION

STANDARD NO:	UES-TS-W002
REVISED DATE:	14 FEB 10
ISSUE DATE:	11 MAY 09
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## UTILITY TECHNICAL STANDARDS

### PRODUCTS

All materials and equipment specified in this standard apply to WDS piping installed in utilidors, vaults, manholes and building mechanical rooms. Provide new material and equipment in perfect condition; furnished in quantities requested and at the proper time. Piping materials shall conform to all applicable standards, codes and ordinances. Performance characteristics shall be as herein listed and specified.

An attempt has been made in these specifications to name at least two, and in most cases three manufacturers wherever products are specified. Where only one name is listed, it has been done for a definite reason. Each proposer shall base his proposal on the products listed. This shall be done in order that an unambiguous comparison of proposals may be obtained. Pipe, fittings, valves, and specialties manufacturers are subject to approval by Doyon Utilities, LLC (DU) and the Engineering Design Firm of Record (Engineer of Record).

All materials and equipment to be used for this contract shall be in accordance with the following system specification tables for each piping service. Items shall be standard products of a reputable manufacturer regularly engaged in production of same.

Manufacturer's nameplate indicating model number, serial number and performance data shall be permanently affixed to all equipment furnished under this contract. Materials and equipment shall be manufacturer's latest model.

### SUBMITTALS

Submittals shall show size, weight, arrangement, capacities, performance curves, construction details, connection details and other features as applicable, to show compliance with contract documents and suitability for job requirements. Specific features, characteristics, sizes, model numbers, accessories, and other information necessary to fully identify items being provided shall be clearly marked on submittals. Submittals provided without such marking of applicable features shall be returned unreviewed for correction and resubmittal.

Do not release any material or equipment for manufacture or shipment to the jobsite until submittals have been returned with Engineer of Record's stamp indicating *"No Exceptions Noted."*

Supplier shall **electronically** transmit submittals to the Engineer of Record with their proposal response. Failure to provide required submittal data with the proposal will result in a judgment of "non-responsive" to the request for proposal.

Submit the following items for approval in accordance with this table.	Product Data	Performance Data	Letter of Certification	Shop Drawings	Test Reports	Schematic Diagrams	Device Schedule	Qualifications Statement	Installation Instructions	Performance Procedure	O & M Instructions
Pipe	X		X		X			X	X		
Fittings	X		X		X			X	X		X
Valves	X	X	X	X	X			X	X	X	X
Strainers	X	X	X	X	X			X	X	X	X

DOYON UTILITIES, LLC 714 FOURTH AVENUE FAIRBANKS, AK 99701				FORT GREELY FORT RICHARDSON FORT WAINWRIGHT
UTILITY SERVICE PROVIDER TO US ARMY ALASKA				



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#### DELIVERY, STORAGE & HANDLING

Supplier shall provide temporary protection for piping materials and equipment furnished which shall remain in place until transferred to contractors for installation. Supplier provided protection shall include:

- Temporary end caps and closures on piping, fittings, valves, and equipment openings to resist entry of foreign materials.
- Temporary protective coating on cast iron, bronze and steel valves.

DU will provide the primary delivery and staging area. All shipments shall be addressed and delivered to the DU primary delivery site.

Transportation and handling shall be the responsibility of the Supplier. The Supplier shall control deliveries to the site to avoid congestion of storage areas with materials which cannot be installed in a reasonable time.

Supplier has two options for shipment to the DU primary delivery site. No other method is acceptable.

Preferred Method: FOB Jobsite  
Alternate Method: FOB Manufacturer, FFA Jobsite

Off loading of material and equipment from delivery truck or rail car shall be provided by DU. Supplier to provide DU with all rigging and unloading requirements one week prior to delivery for scheduling of appropriate construction equipment.

DU shall receive material and equipment on site, inspect for damage, and verify that all components are provided in accordance with the Contract Documents. Any damage found to material or equipment will be reported immediately. Damaged items shall be replaced by the Supplier.

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SERVICE	Domestic Water (W)	
PRESSURE	0 to 250 PSIG	
TEMPERATURE	35 to 150°F	
ITEM	SIZE (IN.)	DESCRIPTION
PIPE	½ thru 2	Copper, Type L, hard drawn, ASTM B75, ASTM B88, ASTM B251, ASTM B447
	3 thru 24	Ductile iron pipe, AWWA C151, Special Thickness Class 53 for 3" thru 16", Class 54 for 18" Class 55 for 20" Class 56 for 24" thru 36  Pipe shall be supplied in minimum Pressure Class 350 for 3" thru 12"; Pressure Class 250 for 14" thru 16"; Pressure Class 200 for 24", and Pressure Class 150 for 30" and larger  Cut groove ends, AWWA C606 Cement-mortar lined, AWWA C104  APPROVED MANUFACTURERS: <div>American Pipe      CLOW Water Systems      Pacific States Atlantic States Pipe      Griffin Pipe Products      US Pipe and Foundry Canada Pipe      McWane</div>
TYPE OF JOINT	½ thru 2	Rolled Groove, AWWA C606
	3 thru 24	Cut Groove, AWWA C606
FITTINGS	½ thru 2	Standard wrought copper – ASME B16.15, ASME B16.18, ASME B16.22, ASME B16.23, ASME B16.26, ASME B16.29, ASME B16.32
	3 thru 24	Ductile iron, ASTM A 536. Fittings and specials shall have a pressure rating no less than that of adjoining pipe. Fittings and specials for cut grooved, and shouldered end pipe shall conform to AWWA C606 without field preparation. Fittings and specials for flanged joint pipe shall conform to AWWA C110. Fittings required which are not covered in AWWA C110 shall have AWWA flanges and be based on AWWA C110 design principles.
UNIONS	½ thru 2	Copper ASTM B 75 solder joint ends integral seats ANSI B16.22
COUPLINGS	3 thru 24	Victaulic Style 606 couplings, ASTM A536 Coupling shall provide for full circumferential bearing against face of pipe groove with positive locking action when components being joined are in line. Rubber gaskets and lubricant shall conform to the applicable requirements of AWWA C111.

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PRESSURE	0 to 250 PSIG	
TEMPERATURE	35 to 150°F	
ITEM	SIZE (IN.)	DESCRIPTION
FLANGES	½ thru 2	Wrought Copper, soldered end, full face, ANSI/AWWA C115/A21.15.
	3 thru 24	Forged carbon steel, standard bore, flat face, AWWA C115 / AWWA C110
FLANGE BOLTS	Stud Bolts:	Alloy steel, ASTM A193, Grade B7 Thread ANSI B1. / B18.2.1, Class 2A
	Heavy Hex Nuts:	Alloy Steel, ASTM A 194, Grade 2H Thread ANSI B1.1 / B18.2.2, Class 2B
FLANGE GASKETS	½ thru 24	EPDM; full face; ⅛" thickness; high performance type satisfying requirements of ANSI/AWWA C111/A21.11 Appendix C, Sec. C.2; and have at least three bulb type rings molded into both faces of gasket; UL classified in accordance with ANSI/NSF 61 for potable water service; US Pipe Flange-Tyte
THREAD SEALANT	½ thru 4	Teflon Ribbon, ½ inch wide, 4 mils thick

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PRESSURE	0 to 250 PSIG	
TEMPERATURE	35 to 150°F	
ITEM	SIZE (IN.)	DESCRIPTION
BALL VALVES	½ thru 2	Full port, ANSI Class 600, PSI non-shock cold water, ASTM B124 Body: Forged brass, two piece body and end piece Ball & Trim: Brass ball, chrome plated, free floating, brass alloy stem. Seats & Seals: TFE (TFM-1600; PTFE) Ends: Soldered Handle: Stainless steel tee handle with vinyl insulator. Features: Blow-out proof stem, 2 ¼ in. stem extension
		APPROVED MANUFACTURERS: Apollo Marwin Watts Jamesbury Velan
BUTTERFLY VALVES	3 thru 24	ANSI Class 150 Body: Cast carbon steel, threaded lug pattern, extended neck Disc: Stainless steel, ASTM A182-F316L with PTFE woven fabric liner over 317 stainless steel frame Bearings: RFTF lined stainless steel Stem: Stainless steel, ASTM A182-F316L Seat: EPDM, field replaceable Features: Manual worm gear-operator, bi-directional for dead end service.
		APPROVED MANUFACTURERS: Centerline Jamesbury Walworth DeZurik Velan
GATE VALVES	3 thru 24	AWWA C500 Body: Cast iron, ASTM A126, Trim: Hard faced with 13 percent chrome Ends: Flanged, AWWA C115 Features: Resilient seat type with non-rising stem, bolted bonnet with Teflon impregnated packing, solid wedge disc. Gate valves serving fire hydrants shall be flange x mechanical joint type and must be FM approved. Gate valve shall connect to a hydrant "swivel" tee, as manufactured by Tyler.
		APPROVED MANUFACTURERS: Hammond Powell Walworth Jenkins Stockham Watts Milwaukee Velan

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PRESSURE	0 to 250 PSIG	
TEMPERATURE	35 to 150°F	
ITEM	SIZE (IN.)	DESCRIPTION
CHECK VALVES	½ thru 2	Full port, swing type, Class 600, PSI non-shock cold water, ANSI B 16.34 Body: Bronze with renewable bronze disc Trim: Hard faced with 13 percent chrome Ends: Socket weld, ANSI B16.11 Features: Horizontal installation, bolted bonnet with spiral-wound gasket
		APPROVED MANUFACTURERS: <div>Bonney ForgeRP&amp;CWalworth HammondVelanWatts MilwaukeeVogt</div>
FIRE HYDRANTS	6	Fire hydrants shall be “Dry Barrel” type conforming to AWWA Specification C502. Hydrants shall open counterclockwise. Working parts shall be bronze or non-corrodible metal. Upper standpipe length shall be 16 inches. Furnish each hydrant with 10' stem with drain outlets at base of barrel. Hydrants shall have two - 2½” hose connections and one - 4½” pumper connection. Hose threads shall be National Standard threads. Hydrant inlet connection shall be flanged. Painting and coating shall be in accordance with AWWA C502. Color of paint shall be Federal Safety Yellow, two coats after installation.
		APPROVED MANUFACTURER & MODEL: American Flow Control Waterous Pacer WB-67-250
Air release valves shall be cast iron body and cover, stainless float with brass seats conforming to AWWA C-512.		

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TEMPERATURE	35 to 150°F	
ITEM	SIZE (IN.)	DESCRIPTION
STRAINERS	½ thru 2	Bronze body "Y" pattern threaded end connections strainer ASTM B 62 (Alt. B-61) 400 lb WOG at 150 deg F rating. .033 perforated stainless steel screen (Alt: Monel)
		APPROVED MANUFACTURERS: Apollo Mueller Armstrong Self Cleaning Strainer Co.(Paget) Keckley Watts
	3 thru 24	Stainless steel conical strainer with 0.125 in. perforations, long pattern, 200% open area relative to flow area of same size standard weight pipe, 14 gage, flange class 300
		APPROVED MANUFACTURERS: Mueller Mack Iron Works Keckley Self Cleaning Strainer Co.(Paget) Watts
TEMPORARY STRAINERS (START-UP)	3 thru 24	Stainless steel conical strainer with 0.045 in. perforations, long pattern, 200% open area relative to flow area of same size standard weight pipe, 14 gage, flange class 150
		APPROVED MANUFACTURERS: Mack Iron Works Self Cleaning Strainer Co.(Paget) Mueller Watts

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