



UTILITY ENGINEERING STANDARDS
PIPING SPECIFICATIONS
UTILITY SYSTEM CONSTRUCTION
RELEASED FOR DISTRIBUTION

STANDARD NO:	UES-TS-H002
REVISED DATE:	30 MAR 10
ISSUE DATE:	27 APR 09
PAGE:	1 OF 9

UTILITY TECHNICAL STANDARDS

PRODUCTS

All materials and equipment specified in this standard apply to both direct buried (carrier/service pipe) and HDS 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 bidder shall base his proposal on the products listed. This shall be done in order that an unambiguous comparison of bids 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 bid 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
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UTILITY SERVICE PROVIDER TO US ARMY ALASKA



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ISSUE DATE:	27 APR 09
PAGE:	2 OF 9

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 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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REVISED DATE:	30 MAR 10
ISSUE DATE:	27 APR 09
PAGE:	3 OF 9

SERVICE	Steam (MPS, LPS)	
PRESSURE	0 to 150 PSIG	
TEMPERATURE	32 to 620°F	
ITEM	SIZE (IN.)	DESCRIPTION
PIPE	½ thru 2	Carbon steel, standard wall, ASTM A106, Type S, Grade B, plain ends, ANSI B36.10
	3 thru 24	Carbon steel, standard wall, ASTM A106, Type S, Grade B, beveled ends, ANSI B36.10
TYPE OF JOINT	½ thru 2	Socket Weld
	3 thru 24	Butt Weld
FITTINGS	½ thru 2	Forged carbon steel, ASTM A105, long radius, ANSI Class 3000, socket weld ends, ANSI B16.11
	3 thru 24	Carbon steel, standard wall, ASTM A234, Grade WPB, long radius, ANSI B16.9, butt weld ends
NIPPLES	½ thru 2	Carbon steel, standard wall, ASTM A106, Type S, Grade B, plain ends
UNIONS	½ thru 2	Forged carbon steel, ASTM A105, integral seats, ANSI Class 3000, socket weld ends, ANSI B16.11
FLANGES	½ thru 2	Forged carbon steel, ASTM A105, socket weld, ANSI Class 150 raised face, ANSI B16.5
	3 thru 24	Forged carbon steel, standard bore, ASTM A105, weld neck, ANSI Class 150 raised face, ANSI B16.5
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
GASKETS	½ thru 24	⅞ in. thick ANSI Class 150, ring type, 316 stainless steel inner ring, carbon steel outer ring, 316L stainless steel winding strip, spiral wound. APPROVED GASKETS: Flexitallic style CGI with "Flexite Super" filler.

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ISSUE DATE:	27 APR 09
PAGE:	4 OF 9

SERVICE	Steam (MPS, LPS)	
PRESSURE	0 to 150 PSIG	
TEMPERATURE	32 to 620°F	
ITEM	SIZE (IN.)	DESCRIPTION
BALL VALVES	½ thru 2	Full port, ANSI Class 600 Body: Forged carbon steel Ball & Trim: 316 stainless steel (CF3M) Seats & Seals: TFE (TFM-1600; PTFE) Ends: Socket weld, ANSI B16.11 Handle: Stainless steel tee handle with vinyl insulator. Features: Blow-out proof stem, 2 ¼ in. stem extension
		APPROVED MANUFACTURERS: Apollo Marwin Jamesbury Velan
GATE VALVES	½ thru 2	Full port, Class 800, ANSI B 16.34 Body: Forged carbon steel, ASTM A 105 Trim: Hard faced with 13 percent chrome Ends: Socket weld, ANSI B16.11 Features: OS&Y, self-aligning packing gland, bolted bonnet with spiral-wound gasket, solid wedge disc, integral hard faced seats
		APPROVED MANUFACTURERS: Bonney Forge Velan Walworth RP&C Vogt
	3 thru 24	ANSI Class 150, ANSI B 16.34 Body: Cast carbon steel, ASTM A 216, Type WCB Trim: Hard faced with 13 percent chrome Ends: Butt weld, ANSI B 16.25 Features: OS&Y, bolted bonnet with spiral-wound gasket, flex wedge disc
		APPROVED MANUFACTURERS: Jenkins Stockham Walworth Powell Velan
GLOBE VALVES	½ thru 2	Full port, Class 800, ANSI B 16.34 Body: Forged carbon steel, ASTM A 105 Trim: Hard faced with 13 percent chrome Ends: Socket weld, ANSI/ASME B16.11 Features: OS&Y, self-aligning packing gland, bolted bonnet with spiral-wound gasket, loose disc, integral hard faced seats
		APPROVED MANUFACTURERS: Bonney Forge Velan Walworth RP&C Vogt

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REVISED DATE:	30 MAR 10
ISSUE DATE:	27 APR 09
PAGE:	5 OF 9

SERVICE	Steam (MPS, LPS)	
PRESSURE	0 to 150 PSIG	
TEMPERATURE	32 to 620°F	
ITEM	SIZE (IN.)	DESCRIPTION
CHECK VALVES	½ thru 2	Full port, swing type, Class 800, ANSI B 16.34 Body: Forged carbon steel, ASTM A 105 Trim: Hard faced with 13 percent chrome Ends: Socket weld, ANSI B16.11 Features: Horizontal installation, bolted bonnet with spiral-wound gasket
		APPROVED MANUFACTURERS: Bonney Forge Velan Walworth RP&C Vogt
	3 thru 24	Full port, disc swing type, ANSI Class 150, ANSI B 16.34 Body: Cast carbon steel ASTM A 216 Grade WCB Trim: Hard faced with 13 percent chrome Ends: Butt weld, ANSI B 16.25 Features: Horizontal installation, bolted bonnet with spiral-wound gasket
		APPROVED MANUFACTURERS: Jenkins Stockham Walworth Powell Velan
STRAINERS	½ thru 2	Cast carbon steel, ANSI Class 600, "Y" pattern strainer, socket weld connections, ASTM A 216, Grade WCB, 0.045 in. perforations stainless steel screen (alternate: Monel)
		APPROVED MANUFACTURERS: Apollo Mueller Armstrong Self Cleaning Strainer Co.(Paget) Keckley Watts
	3 thru 24	Cast carbon steel, ANSI Class 150, "Y" pattern self-cleaning strainer, butt weld end connection, ASTM A 216, Grade WCB, 0.045 perforated stainless steel screen (alternate: Monel)
		APPROVED MANUFACTURERS: Mueller Mack Iron Works Keckley Self Cleaning Strainer Co.(Paget)
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)

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STANDARD NO:	UES-TS-H002
REVISED DATE:	30 MAR 10
ISSUE DATE:	27 APR 09
PAGE:	6 OF 9

SERVICE	Condensate (PCR, HPR)	
PRESSURE	0 to 100 PSIG	
TEMPERATURE	32 to 450°F	
ITEM	SIZE (IN.)	DESCRIPTION
PIPE	½ thru 2	Stainless steel, Schedule 10S, ASTM A312, Type 316L, seamless, plain ends, ANSI B36.19
	3 thru 24	Stainless steel, Schedule 10S, ASTM A312, Type 316L, seamless, beveled ends, ANSI B36.19
TYPE OF JOINT	½ thru 2	Socket Weld
	3 thru 24 (preheated)	Butt Weld
FITTINGS	½ thru 2	Forged stainless steel, ASTM A182-F316L, long radius, ANSI Class 3000, ANSI B16.11, socket weld
	3 thru 24 (preheated)	Wrought stainless steel, Schedule 10S, ASTM A403-WP316L, long radius, ANSI B16.9, butt weld
NIPPLES	½ thru 2	Stainless steel, Schedule 10S, ASTM A312, Type 316L, plain ends
UNIONS	½ thru 2	Forged stainless steel, ASTM A182-F316L, ANSI Class 3000, integral seats, socket weld ends
FLANGES	½ thru 2	Forged stainless steel, ASTM A182-F316L, ANSI Class 150, socket weld, raised face ANSI B16.5
	3 thru 24	Forged stainless steel, ASTM A182-F316L, ANSI Class 150, weld neck, standard bore, raised face, ANSI B16.5
FLANGE BOLTS	Stud Bolts:	Alloy steel, ASTM A 193, 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
GASKETS	½ thru 24	⅞ in. thick ANSI Class 150, ring type, 316 stainless steel inner ring, carbon steel outer ring, 316L stainless steel winding strip, spiral wound. APPROVED GASKETS: Flexitallic style CGI with "Flexite Super" filler.

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REVISED DATE:	30 MAR 10
ISSUE DATE:	27 APR 09
PAGE:	7 OF 9

SERVICE	Condensate (PCR, HPR)	
PRESSURE	0 to 100 PSIG	
TEMPERATURE	32 to 450°F	
ITEM	SIZE (IN.)	DESCRIPTION
BALL VALVES	½ thru 2	Full port, ANSI Class 800 Body: Stainless steel, ASTM A182-F316L Ball & Trim: 316 stainless steel (CF3M) Seats & Seals: TFE (TFM-1600; PTFE) Ends: Socket weld, ANSI B16.11 Handle: Stainless steel tee handle with vinyl insulator. Features: Blow-out proof stem, 2 ¼ in. stem extension
		APPROVED MANUFACTURERS: Apollo Marwin Jamesbury Velan
BUTTERFLY VALVES	3 thru 24	ANSI Class 150 Body: Cast stainless steel, threaded lug pattern, extended neck Disc: Stainless steel, ASTM A182-F316L Bearings: RFTE 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 Keystone DeZurik
GLOBE VALVES	½ thru 2	Full port, Class 800, ANSI B 16.34 Body: Forged stainless steel, ASTM A182-F316L Trim: Stainless steel, ASTM A351-CF8M Ends: Socket weld, ANSI B16.11 Features: OS&Y, self-aligning packing gland, bolted bonnet with spiral-wound gasket, loose disc, integral hard faced seats
		APPROVED MANUFACTURERS: Bonney Forge Velan Walworth RP&C Vogt

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REVISED DATE:	30 MAR 10
ISSUE DATE:	27 APR 09
PAGE:	8 OF 9

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PRESSURE	0 to 100 PSIG	
TEMPERATURE	32 to 450°F	
ITEM	SIZE (IN.)	DESCRIPTION
GATE VALVES	½ thru 2	Full port, Class 800, ANSI/ASME B 16.34 Body: Forged stainless steel, ASTM A182-F316L Trim: Stainless steel, ASTM A351-CF8M Ends: Socket weld, ANSI B16.11 Features: OS&Y, self-aligning packing gland, bolted bonnet with spiral-wound gasket, solid wedge disc, integral hard faced seats
		APPROVED MANUFACTURERS: Bonney Forge Velan Walworth RP&C Vogt
	3 thru 24	ANSI Class 150, ANSI B 16.34 Body: Cast stainless steel, ASTM A351-CF3M Trim: Stainless steel, ASTM A351-CF3M Ends: Butt weld, ANSI B 16.25 Features: OS&Y, bolted bonnet, flex wedge disc
		APPROVED MANUFACTURERS: Jenkins Stockham Walworth Powell Velan
CHECK VALVES	½ thru 2	Full port, swing type, Class 800, ANSI B 16.34 Body: Forged stainless steel, ASTM A182-F316L Trim: Stainless steel, ASTM A351-CF8M Ends: Socket weld, ANSI B16.11 Features: horizontal installation, bolted bonnet with spiral-wound gasket
		APPROVED MANUFACTURERS: Bonney Forge Velan Walworth RP&C Vogt
	3 thru 24	Full port, disc swing type, ANSI Class 150, ANSI B 16.34 Body: Stainless steel, ASTM A182-F316L Trim: Stainless steel, ASTM A182-F316L Ends: Butt weld, ANSI B 16.25 Features: Horizontal installation, bolted bonnet with spiral-wound gasket
		APPROVED MANUFACTURERS: Jenkins Stockham Walworth Powell Velan

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ISSUE DATE:	27 APR 09
PAGE:	9 OF 9

SERVICE	Condensate (PCR, HPR)	
PRESSURE	0 to 100 PSIG	
TEMPERATURE	32 to 450°F	
ITEM	SIZE (IN.)	DESCRIPTION
STRAINERS	½ thru 2	Stainless steel, ASTM A182-F316L, ANSI Class 600, "Y" pattern strainer, socket weld connections, 0.045 in. perforations stainless steel screen (alternate: Monel)
		APPROVED MANUFACTURERS: Apollo Mueller Armstrong Self Cleaning Strainer Co.(Paget) Keckley Watts
	3 thru 24	Stainless steel, ASTM A182-F316L, ANSI Class 150, "Y" pattern self-cleaning strainer, butt weld end connection, 0.045 perforated stainless steel screen (alternate: Monel)
		APPROVED MANUFACTURERS: Mueller Mack Iron Works Keckley Self Cleaning Strainer Co.(Paget)
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)

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