

YALE Site Specifications

SECTION 23 21 16 01 – PIPING SPECIALTIES APPENDIX

Date	Description of Change	Pages / Sections Modified	ID
6/15/16	Entire document	-	mgl44

AIR VENT SCHEDULE

Tag	AV-1	AV-2	AV-3
Type	Automatic Float	Low Pressure Steam	High Pressure Steam
Fluid/Application	Water/Piping vent	HVAC applications, 15 Psig and Below	15 to 300 Psig services
Acceptable Manufacturers/ Models (Note 1)	Amtrol, Model 747	Hoffman, Model 4	TLV America Model LA-21
Materials: Body/Cover Internals	cast iron brass, bronze, or stainless steel	cast iron stainless steel	stainless steel stainless steel
Design Pressure (MAWP), psig	150	25	300
Design temp (Deg F)	250	275	572
Inlet Connection	3/4 inch NPT	1/2 or 3/4-inch NPT	1/2-inch NPT
Outlet Connection	3/8-inch NPT	1/2 or 3/4-inch NPT	1/2-inch NPT

Notes:

1. YALE approved alternative manufacturer and model may be substituted
2. Installation:
 - a. Install vertically, into pipe high points.
 - b. Pipe steam vent discharge line to safe area. Pitch tubing continuously to drain.
 - c. Route automatic hydronic system air vent tubing to nearest drain with outlet easily visible. Pitch tubing to drain.

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BALANCING-VALVE DEVICES SCHEDULE

	BVD- 1	BVD- 2	BVD - 3	BVD - 4
General Description	Manual, heating & Cooling terminal, branch, risers, mains, pumps	Manual, heating & Cooling terminal, branch, risers, mains, pumps	Auto, heating & cooling	Auto, heating & cooling
General Service	Liquid	Liquid	Liquid	Liquid
Materials of Construction				
Body	Brass	Iron	Brass	Iron
Trim				
Seal				
Connection Type	NPT, FF, RF	NPT, FF, RF	NPT, FF, RF	NPT, FF, RF
Features				
	P&T Test Plugs	P&T Test Plugs	P&T Test Plugs	P&T Test Plugs
	Memory Stops	Memory Stops	Memory Stops	Memory Stops
Cleaning Criteria	N/A	N/A	N/A	N/A
Design Pressure (psig)	400	400	400	400
Design temperature (Deg F)	300	300	300	300
Manufacturer (Note 1)				
Model/Series (Note 1)				

Notes:

1. YALE approved alternative manufacturer and model may be substituted

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EXPANSION JOINT SCHEDULE

	EX-1	EX-2	EX-3
Service	General Hydronics (not appropriate for hot water)	General Hydronics (for hot water applications)	General Process Hydronics (Process Chilled Water)
Component Type	EPDM pump flexible connector	EPDM pump flexible connector	Neoprene hand-built wide arch
Description	<ol style="list-style-type: none"> 1. EPDM cover, liner, and fabric frictioning. 2. Multi-layered polyester tire cord fabric reinforcement. 3. Split baked enamel ductile iron floating flanges. 4. Molded-in reinforcing ring. 5. Accepts compression, elongation, angular, and transverse movements. 	<ol style="list-style-type: none"> 1. EPDM cover, liner, and fabric frictioning. 2. Multi-layered Kevlar tire cord fabric reinforcement. 3. Split baked enamel ductile iron floating flanges. 4. Molded-in reinforcing ring. 5. Accepts compression, elongation, angular, and transverse movements. 	<ol style="list-style-type: none"> 1. Neoprene tube with Hypalon cover. 2. Stainless steel backup rings. 3. Integral steel body reinforcement rings at arch. 4. Accepts compression, elongation, angular, and transverse movements. 5. Stainless steel exposed nonwetted metal parts.
Rating	Vacuum to 250 psig at 170 F	Vacuum to 250 psig at 170 F	Vacuum to 160 psi at 250 F
Connections	1-1/2" to 6", ANSI 150# flanges	1-1/2" to 14", ANSI 150# flanges	2" to 18", ANSI 150# flanges
Cleaning and Packaging	None	None	None
Accessories	Control rods, including sleeves and rubber isolators	Control rods, including sleeves and rubber isolators	Control rods, including sleeves and rubber isolators
Manufacturer (Note 1)	Mason Industries, series SFDEJ	Mason Industries, series HT500	Unisource, series 1500 Mason, series 500

Notes:

1. YALE approved alternative manufacturer and model may be substituted

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EXPANSION JOINT SCHEDULE (CONTINUED)

	EX-3	EX-4	EX-5
Service	General Hydraulics, pump connectors	General Industrial/Hydraulics, pump connectors	General Industrial
Component Type	Metal braided flexible hose	Stainless steel bellows	Stainless steel bellows
Description	<ol style="list-style-type: none"> 1. Type 321 stainless steel hose and braid. 2. Carbon steel FF flanges. 	<ol style="list-style-type: none"> 1. 300 series stainless steel wetted parts. 2. Carbon steel flanges. 3. Accepts elongation, angular, and transverse movements. 	<ol style="list-style-type: none"> 1. 300 series stainless steel wetted parts. 2. Stainless steel flanges. 3. Accepts compression, elongation, angular, and transverse movements. 4. Stainless steel exposed nonwetted metal parts.
Rating	Vacuum to 125 psig at 250 F	Vacuum to 200 psi at 400 F	Vacuum to 160 psi at 250 F
Connections	1" to 8", ANSI 150# flanges	12" to 22", ANSI 150# flanges	2" to 60", ANSI 150# flanges
Cleaning and Packaging	N/A	N/A	N/A
Accessories	None	Control rods and sleeves	Control rods, including sleeves and rubber isolators
Manufacturer (Note 1)	Flex-Hose Flexicraft (Flexonics) Hyspan	Hyspan 5501R074 5501R080 5501R081 5501R082 5501R083 5501R084	Flex-Hose, Bellowsflex series

Notes:

1. YALE approved alternative manufacturer and model may be substituted

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EXPANSION JOINT SCHEDULE (CONTINUED)

	EX-7	EX-8
Service	DI Water	Wastewater and non-clean chemicals
Component Type	Teflon-lined rubber with wide single arch	Teflon-lined rubber with wide single arch
Description	<ol style="list-style-type: none"> 1. Teflon-lined rubber tube with Hypalon cover. 2. Stainless steel back-up flange rings. 3. Integral steel body reinforcement rings at arch. 4. Accepts compression, elongation, angular, and transverse movements. 5. Stainless steel exposed nonwetted metal parts. 	<ol style="list-style-type: none"> 1. Teflon-lined rubber tube with Hypalon cover. 2. Stainless steel back-up flange rings. 3. Integral steel body reinforcement rings at arch. 4. Accepts compression, elongation, angular, and transverse movements. 5. Stainless steel exposed nonwetted metal parts.
Rating	Vacuum to 160 psi at 250 F	Vacuum to 160 psi at 250 F
Connections	2" to 18", ANSI 150# flanges	2" to 18", ANSI 150# flanges
Cleaning and Packaging	N/A	N/A
Accessories	Control rods, including sleeves and rubber isolators	Control rods, including sleeves and rubber isolators
Manufacturer (Note 1)	Unisource, series 1500 Garlock, series 200 Mason Industries, series 700	Unisource, series 1500 Garlock, series 200 Mason Industries, series 700

Notes:

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FLEXIBLE CONNECTOR SCHEDULE

	FC-1	FC-2	FC-3	FC-4
Service	General Hydraulics, pump connectors	General Process Hydraulics, pump connectors	Pneumatic Supply Maintenance	General Process Hydraulics, pump connectors
Component Type	Metal braided flexible hose	Metal braided flexible hose	Rubber hose w/brass adaptors	Metal braided flexible hose
Description	1. Type 321 stainless steel hose and braid. 2. Carbon steel FF flanges.	1. Type 316 stainless steel hose and braid. 2. 316 stainless steel FF flanges.	1. Buna-N rubber hose and cover. 2. Synthetic cord braid reinforcement	1. Type 316 stainless steel hose and braid. 2. 316 stainless steel FF flanges.
Rating	Vacuum to 125 psig at 250 F	Vacuum to 150 psig at 250 F	350 psig @ 70 F	240 psig at 70 F
Connections	2" to 14", ANSI 150# flanges	2" to 14", ANSI 150# flanges	1/4" male NPT both ends	6", ANSI flanges
Cleaning and Packaging	N/A	N/A	N/A	N/A
Accessories	None	None	None	None
Manufacturer (Note 1)	Flex-Hose Flexicraft (Flexonics) Mason Industries	Flex-Hose Flexicraft (Flexonics) Mason Industries	Swagelok B-PB4PM4PM4-36	Flex-Hose, series SMP Mason Industries, series BSS

Notes:

1. YALE approved alternative manufacturer and model may be substituted

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PRESSURE INDICATOR SCHEDULE

	PI-1	PI-2	PI-3	Notes
Service	General, Industrial	General, Industrial	General, Filled, Industrial	<ol style="list-style-type: none"> 1. No substitutes allowed 2. WWBL = White with black letters. 3. Accuracy grades for gauges listed in the data sheets shall be in accordance with ANSI B40.1 4. Provide with thermal isolator (pigtail) for steam service or other elevated temperature fluids: <ol style="list-style-type: none"> a. Use angle-style pigtails for gauges connected to vertical pipes; use straight-style pigtails for gauges connected to horizontal pipes. b. Do not insulate pigtails. c. Provide pigtails of material rated for the service. 5. Install gauges at easily accessible locations for viewing and for maintenance. Indicating devices shall be installed so they can be easily read from floor level.
Type	Bourdon tube	Bourdon tube	Bourdon tube	
Wetted materials	Brass	Stainless steel	Stainless steel	
Case material	Stainless steel	Stainless steel	Stainless steel	
Window material	Polycarbonate	Polycarbonate	Polycarbonate	
Dial color	WWBL (Note 2)	WWBL (Note 2)	WWBL (Note 2)	
Connection	Lower or back, 1/4-inch	Lower or back, 1/4-inch	Lower or back, 1/4-inch	
Liquid fill	N/A	N/A	Yes, Glycerine	
Adjustment	N/A	N/A	N/A	
Accuracy	Grade 1A, 1 percent	Grade 1A, 1 percent	Grade 1A, 1 percent	
Special features	2-1/2" and 3-1/2" Dials	2-1/2" and 3-1/2" Dials	2-1/2" and 3-1/2" Dials	
Cleaning Criteria	N/A	N/A	N/A	
Pressure range	See Drawings	See Drawings	See Drawings	
Manufacturer (Note 1)	Ashcroft 1009 Series or Marsh, Weiss, Trerice, U.S. Gauge, or Marshalltown equivalent	Ashcroft 1009 Series or Marsh, Weiss, Trerice, U.S. Gauge, or Marshalltown equivalent	Ashcroft 1009 Series or Marsh, Weiss, Trerice, U.S. Gauge, or Marshalltown equivalent	

YALE Site Specifications

PRESSURE REGULATING VALVE SCHEDULE (water and air)

	Type 1	Type 2	Type 3
General Description	Direct acting	Direct acting	Relieving filter / regulator
General Service	Industrial air and water, high pressure	Industrial / domestic air and water, low pressure	Compressed air, filters to 50 micron
Materials of Construction			
Elastomers	Nitrile	Nitrile	Nitrile
Diaphragm	Nitrile	Nitrile	Nitrile
Body	Bronze	Bronze	Zinc, brass, aluminum
Trim	Bronze	Bronze, cast iron	Zinc, brass, aluminum
Connection type	1/2 to 2 inch FNPT	1/2 to 2-1/2 inch FNPT	1/4 to 1/2-inch FNPT
Features	Set-screw adjustment, adjustable ranges vary (10-40 psi, 20-70 psi, 71-150 psi).	Set-screw adjustment between 20 and 80 psig	Adj. between 5 and 125 psig. Clean w/out removal from the line. Metal bowl.
Cleaning Criteria (see applicable standard)	N/A	N/A	N/A
Design Pressure (psig)	300	200	150
Design temperature (degrees F)	180	150	175
Maximum Allowable Outlet Pressure	Varies	Varies	Varies
Manufacturer (Note 1)	Cash Acme E-41, or Fisher, Keckley, Leslie, Sarco, or Spence equivalent	Fisher 75A, or Keckley, Leslie, Sarco, or Spence equivalent	Norgren B73, or Fisher, Keckley, Leslie, Sarco, or Spence equivalent

Notes:

1. YALE approved alternative manufacturer and model may be substituted

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PRESSURE REGULATING VALVE SCHEDULE (CONTINUED)

	Type 4	Type 5
General Description	Direct acting	Direct acting
General Service	High capacity, general industrial gas	Instrument air
Materials of Construction		
Elastomers	Buna N	None
Diaphragm	Buna N	Stainless
Body	Bronze	
Trim	Brass, with stainless seat ring	Bronze 303 SS
Connection type	1/4 to 1-1/2 inch FNPT	Flanged
Features	Set-screw adjustment, ranges vary.	Set-screw adjustment
Cleaning Criteria	N/A	N/A
Design Pressure (psig)	250	150
Design temperature (degrees F)	180	100
Maximum Allowable Outlet Pressure	Varies	Varies
Manufacturer (Note 1)	Cash Acme G-60, or Fisher, or Sarco equivalent	Jordan

Notes:

1. YALE approved alternative manufacturer and model may be substituted

YALE Site Specifications

PRESSURE RELIEF VENT SCHEDULE

	Type 1	Type 2
General Description	Pressure relief	Pressure relief
General Service	Compressed air	Liquids – HW
Materials of Construction		
Elastomer	Teflon	EPDM
Nozzle	SS	WCB
Body	Standard	Bronze
Disc/disc holder	SS	
Connection type	(Note 2)	(Note 2)
Inlet	(Note 2)	(Note 2)
Outlet	(Note 2)	(Note 2)
Features	Adjustment bolts	Lifting lever
Cleaning Criteria (see applicable Standard)	CP-3	N/A
Design pressure (psig)	150	150 max
Relief set pressure (psig)	125	125
Design temperature (degrees F)	100	250
Back Pressure	Atmosphere	Atmosphere
Relief capacity (scfm)	(Note 2)	(Note 2)
Manufacturer (Note 1)	Crosby --	Crosby –
Model/Series (Note 1)	JOS-15	Series JLT-JOS
Code	ASME Section VIII	ASME Section VIII

Notes:

1. YALE approved alternative manufacturer and model may be substituted
2. Sized per system requirements

YALE Site Specifications

TEMPERATURE INDICATOR SCHEDULE

	TI-1	TI-2
Service	General	General, Filled
Case Material	316 stainless steel	316 stainless steel
Dial Size	3-inch dia., glass window	3-inch dia., glass window, glycerine-filled
Dial Color	White with black letters	White with black letters
Sensor Type	Bimetal	Bimetal
Stem Connection	1/2-inch NPT	1/2-inch NPT
Stem diameter	1/4-inch	1/4-inch
Manufacturer (Note 1)	Ashcroft 30-E1-60 Series, or U.S. Gauge, Marsh, or Marshalltown equivalent	Ashcroft, 30-EL-60 Series, or U.S. Gauge, Marsh, or Marshalltown equivalent
Pressure range	See Drawings	See Drawings
Thermowell	varies – see Drawings	varies – see Drawings

Notes:

1. No substitutes allowed

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THERMOWELL SCHEDULE

Tag	TW-1	TW-2	TW-3	TW-4
Service	General hydronic systems, uninsulated piping	General hydronic systems, insulated piping	Mildly aggressive liquids or semi-pure water, uninsulated lines	Ultrapure water, uninsulated
Type	Stepped shank	Stepped shank	Stepped shank	Stepped shank
Connection	3/4-inch NPT	3/4-inch NPT	3/4-inch NPT	3/4-inch NPT
Material	Brass	Brass	304 SS	316 SS
Bore diameter	.260-inch	.260-inch	.260-inch	.260 inch
Cleaning and Packaging Criteria (Section 15060)	n/a	n/a	n/a	n/a
Manufacturer (Note 1)	Ashcroft, Marsh, Marshalltown, or US Gauge	Ashcroft, Marsh, Marshalltown, or US Gauge	Ashcroft, Marsh, Marshalltown, or US Gauge	Ashcroft, Marsh, Marshalltown, or US Gauge

Notes:

2. No substitutes allowed