



PIPING SPEC R
DATE 11-20-78
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FREON
150 PSIG @ 250F
150 PSIG @ -20F
7 PSIA @ -50F
DESCRIPTION

ITEM SIZE

PIPE

P-298	1/2 THRU 1 1/2	ASTM A-106 GR B, EX STRONG SEAMLESS STEEL PIPE.
P-279	2 THRU 14	ASTM A-106 GR B, STD WEIGHT SEAMLESS STEEL PIPE.
P-323	16 THRU 24	ASTM A-53 OR API-5L GR B, 0.375 WALL SEAMLESS OR ELEC WELD STEEL PIPE.

FITTINGS

E=90 DEG ELL, L=45 DEG ELL, T=TEE, X=CROSS, R=REDUCER
C=COUPLING, S=STUB END, U=UNION, PC=PIPE CAP

ELT-16B	1/2 THRU 1 1/2	EX STRONG SEAMLESS STEEL WELDING FITTINGS, ASTM A-234 GR WPB, ANSI B16.9.
R-22	1/4 THRU 1 1/2	EX STRONG STEEL SWAGED NIPPLE, ASTM A-106 OR A-53 GR B, OR ASTM A-696 GR B OR C BARSTOCK, THREADED, BEVELED, PLAIN, OR ANY COMBINATION OF ENDS.
PC-52B	1/2 THRU 1 1/2	EX STRONG SEAMLESS STEEL WELDING CAP, ASTM A-234 GR WPE, ANSI B16.9.
ELTR-15B	2 THRU 24	STD WEIGHT SEAMLESS STEEL WELDING FITTINGS, ASTM A-234 GR WPB, ANSI B16.9.
C-42	1/2 THRU 1 1/2	EX STRONG STEEL WELDLET, ASTM A-105.
C-41	2 THRU 24	STD WEIGHT STEEL WELDLET, ASTM A-105.
PC-51B	2 THRU 24	STD WEIGHT SEAMLESS STEEL WELDING CAP, ASTM A-234 GR WPB, ANSI B16.9.

FLANGES

F-24-RF	1/2 THRU 10	150-LB RAISED FACE WELDING NECK FLANGE, ASTM A-105, ANSI B16.5, BORE TO MATCH WELDING FITTINGS.
F-1-RF	12 THRU 24	150-LB RAISED FACE SLIP-ON FLANGE, ASTM

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PA4380

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ST0408352

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ITEM	SIZE	DESCRIPTION
		A-105, ANSI B16.5.
F-3-RF	1/2 THRU 24	150-LB RAISED FACE BLIND FLANGE, ASTM A-105, ANSI B16.5.
BRANCH CONNECTIONS		
BC-57W	1/2 THRU 24	FOR WELDED PIPING, USE STRAIGHT SIZE OR REDUCING TEE. WELDCLET MAY BE USED IN PLACE OF REDUCING TEE WHEN BRANCH IS SMALLER THAN HEADER.
GASKETS		
G-41A	1/2 THRU 24	STANDARD FLAT RING GASKET 1/8 INCH THICK NEOPRENE-ASBESTOS, GARLOCK 7228, JM-76 OR NICOLET 355.
JOINT COMPOUND		
JC-15		TEFLON TAPE 1/2 INCH BY 3 MIL THICKNESS.
FLANGE BOLTS		
B-A193B7Q	1/2 THRU 24	ASTM A-193 GR E7 LIQUID QUENCHED AND TEMPERED ALLOY STEEL STUD BOLTS WITH ASTM A-194 GR 2H HEAVY HEX NUTS.
BOLT LUBRICANT		
BL-5		JET-LUBE SS-30 COPPER ANTI-SEIZE COMPOUND.
VALVES		
V-617	1/2 THRU 2	150-LB FLANGED OS/Y GATE VALVE, CARBON STEEL BODY, 13 CHROME ALLOY STEEL TRIM WITH HARD-FACED SEATS. BONNEY HLI-113 HANCOCK 950-F-15 JENKINS 8815 LUNK 1100-W PACIFIC 3150-2 RPEC F1580E SMITH 815 VELAN F-00548-C2TY VCGT 353
V-737B	1 THRU 6	150-LB FLANGED STEEL <u>BALL</u> VALVE WITH 316 STAINLESS STEEL BALL, TEFLON SEATS AND SEALS, 1" AND UNDER SHALL HAVE ROUND OR OVAL

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ITEM	SIZE	DESCRIPTION
		HANDLE, 1 1/4" AND OVER LEVER OPERATOR. CONTRD C-1166-BC HILLS MC C S151-CS-T-S6 HILLS MC C F151-CS-T-S6 JAMESBURY D150F-22-36TT KTM E0862-32-TT-15-L LUNK 713LT MARPAK CS-8470-12-TT-W MARPAK CS-8470-12 MARPAK CS-400-12-TT SMITH 415TB- WKM B100-CS-02-S1 WKM B102-CS-02-S1
V-7378G	8 THRU 16	150-LB FLANGED STEEL BALL VALVE WITH 316 STAINLESS STEEL BALL, TEFLON SEATS AND SEALS, WEATHERPROOF GEAR OPERATOR. CONTRD C-1166-BC-WGO HILLS MC C T151-CS-T-S6 HILLS MC C F151-CS-T-S6 JAMESBURY D150F-22-36-TT KTM E0862-32-TT-15-W LUNK 713LT MARPAK CS-400-12-TT-03 SMITH 415T-B WGO WKM B102-CS-02-S1 WGA
V-671S	1 THRU 4	150-LB FLANGED PLUG VALVE, DUCTILE IRON BODY WITH 316 STAINLESS STEEL PLUG, TEFLON SLEEVE, WRENCH OPERATED. DURCO G411-DIC4 TUFLINE 067-DI-316 UNION 15A2HLFL
V-5170	1 THRU 3	150-LB FLANGED 3-WAY, 2-PORT, 90 DEGREE TURN, TEFLON SLEEVED, TRANSFLOW PLIG VALVE, DUCTILE IRON BODY AND 316SS PLUG, 45 DEGREE OFF-SET LEVER OPERATOR. 400F MAXIMUM ALLOWABLE TEMPERATURE.
V-5171	4 THRU 10	150-LB FLANGED 3-WAY, 2-PORT, 90 DEGREE TURN, TEFLON SLEEVED, TRANSFLOW PLIG VALVE, DUCTILE IRON BODY AND 316SS PLUG, WEATHERPROOF GEAR OPERATOR. 400F MAXIMUM ALLOWABLE TEMPERATURE.
V-795	2 THRU 24	150-LB RF WAFER CHECK VALVE, CARBON STEEL BODY AND DISC, METAL SEAL, INCONEL SPRING. ANDERSON-GREENWOOD CV1A-15-SCM-16 GULF MB15-2027WR

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ITEM	SIZE	DESCRIPTION
		MISSION KISSPF
V-831G	6 THRU 24	150-LB WAFER TYPE BUTTERFLY VALVE, DUCTILE IRON BODY, 316 STAINLESS STEEL DISC AND STEM, MOLDED TEFLON SEAT, WEATHERPROOF GEAR OPERATOR. DURCC BL-311
N-100		INSTRUMENTATION
N-101		THE FOLLOWING SPECIFICATIONS ARE TO BE USED FOR INSTRUMENTATION. FOR ITEMS NOT LISTED, THE PRECEDING PIPING SPECIFICATION IS TO BE USED WHERE APPLICABLE.

PIPE

P-105	1/4 THRU 1/2	ASTM B-165 ANNEALED MONEL SEAMLESS TUBING, 1/4 OD, 3/8 OD OR 1/2 OD BY 0.035 WALL, AS SPECIFIED.
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FITTINGS

E=90 DEG ELL, L=45 DEG ELL, T=TEE, X=CROSS, R=REDUCER
C=COUPLING, S=STUB END, U=UNION, PC=PIPE CAP

ELT-5	1/4 THRU 1	3000-LB THREADED FORGED STEEL FITTINGS, ASTM A-105, ANSI B16.11.
ELT-105	1/4 THRU 1/2	MONEL SWAGELCK TUBING FITTINGS.
C-3	1/4 THRU 1	3000-LB THREADED FORGED STEEL COUPLING, ANSI B16.11, OR 3000-LB THREDOLET, ASTM A-105, FOR WELDING IN.
PC-2	1/4 THRU 1	THREADED SOLID STEEL HEX HEAD PLUG, ASTM A-105, ANSI B16.11.
N-7		USE THREADED FITTINGS FOR INSTRUMENT CONNECTIONS ONLY.

JOINT COMPOUND

JC-15	TEFLON TAPE 1/2 INCH BY 3 MIL THICKNESS.
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BRANCH CONNECTIONS

BC-202	1/2 THRU 1 1/2	FOR THREADED PIPING, USE STRAIGHT SIZE TEE ONLY. FOR REDUCING BRANCH, USE A SWAGED NIPPLE.
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ITEM	SIZE	DESCRIPTION
VALVES		
V-699	1/4	3000-LB NEEDLE VALVE, 316 STAINLESS BODY, TEFLON PACKING, 1/4 INCH MALE PIPE THREAD BY 1/4 INCH SWAGELOK ENDS. WHITEY 1VM4-S4-316
NOTE		NO SCREWED CONNECTION WILL BE ALLOWED IN THE MAIN OR BETWEEN MAIN AND FLANGED VALVES EXCEPT FOR INSTRUMENT CONNECTIONS SUCH AS TWS AND ORIFICE FLANGES.
V-367	1/2 THRU 3/4	800-LB SCREWED CS/Y SOLID WEDGE GATE VALVE, CARBON STEEL BODY, 13 CHROME ALLOY STEEL TRIM WITH HARD-FACED SEAT RINGS, BOLTED BONNET. BONNEY FORGE HL113/F HANCOCK 950S JENKINS 8800 LUNK 1111-W RPEC F56DE SMITH 800 TRIANGLE 8522V VELAN S-2054B-C2TY VOGT 12111
V-665B	1/2 THRU 1	500-LB SCREWED CARBON STEEL BALL VALVE WITH STAINLESS STEEL BALL, TEFLON SEATS AND SEALS, 1" AND UNDER SHALL HAVE ROUND OR OVAL HANDLE, 1 1/4" AND OVER LEVER OPERATOR. CLAYTON MARK 880TTD HILLS MC C F602-CS-T-S6/SP-DDB HILLS MC C M502-CS-T-S6 JAMESBURY 21-22-36-MT JENKINS 8421 SMITH 411TBR
V-104	1	600-LB SCREWED OS/Y GLOBE VALVE, CARBON STEEL BODY, 13 CHROME ALLOY STEEL TRIM WITH HARD-FACED SEAT, BOLTED BONNET. BONNEY FORGE HL313/F HANCOCK 5500-S JENKINS 8G80 LUNK 1711-W RPEC F80DE SMITH G80 TRIANGLE 8712V VELAN S-2074B-C2TY VOGT 12141

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