

CONDENSATE RETURN UNIT SYSTEM SELECTION WORKSHEET

1. Determine the total amount of condensate that will enter the condensate tank in lbs/hr or E.D.R.
2. Select the proper pump capacity in gpm and receiver size and type based on Table 1.
3. Determine the required pump discharge pressure:
 - a. Determine the static height from the pump discharge to where the condensate will be stored or pumped, i.e boiler feed unit, return main, etc.
 - b. Determine the pump discharge piping size and total length. Discharge piping should not allow a velocity greater than 7.0 feet per second and have a low pressure drop. See Table 2.
Usually, the best discharge pipe size will be at least one size – sometimes two sizes – larger than the pump outlet tapping.
 - c. Determine any additional back pressure that the pump may need to overcome.

1. Total amount of condensate that will enter the unit in lbs/hr or E.D.R. _____ lbs/hr-E.D.R
2. Select the pump capacity in gpm and receiver size _____ gpm
_____ rec. size
3. Total static height in feet from the pump to the discharge elevation _____ feet
4. Total feet of pressure drop based on total equivalent feet of pipe _____ feet
5. Allowance for any additional back pressure on the pump system _____ feet
6. Total pump discharge required (Add 3+4+5) in feet _____ feet
7. Multiply the above total by .433 to determine pump head requirement in PSI _____ psi
8. Select the pump system from Table 1 that will provide the required gpm, discharge pressure, and receiver size.

Model Selected

Model Number: _____		
GPM: _____	Pressure: _____	
H.P.: _____	Voltage: _____	
Receiver: <input type="checkbox"/> Stainless Steel	<input type="checkbox"/> Steel	<input type="checkbox"/> Cast Iron

Notes:

1. Duplex units offer 100% standby pump protection and are suggested for most applications. Both pumps will run, if required.
2. Receiver tanks are offered in standard stainless steel, cast iron, and carbon steel.
3. Sizing is based on normal systems with normal operating conditions; if large runs of return piping are encountered, it is suggested to oversize the receiver.

SPECIFY WITH CONFIDENCE, SPECIFY PENN PUMP SYSTEMS

CONDENSATE RETURN UNIT

STEEL OR STAINLESS STEEL RECEIVERS

SYSTEM SELECTION WORKSHEET – TABLE 1

CAPACITY STEAM LBS/HR SQ. FT. E.D.R.	PUMP CAP. G.P.M.	DISCHARGE PRESSURE P.S.I.	MOTOR H.P.	PUMP DISCHARGE SIZE IN.	REC. CAP. GAL.	UNIT MODEL NO.		SHIPPING WT. LBS.	
						SIMPLEX	DUPLEX	SIMPLEX	DUPLEX
500 2,000	3	20	1/3	3/4	15	S-320	D-320	125	185
		30	1/2	1-1/2		S-330	D-330	180	250
		40	1	1-1/2		S-340	D-340	190	270
		50	2	1-1/2		S-350	D-350	195	275
1,000 4,000	6	20	1/3	3/4	15	S-620	D-620	125	185
		30	1/2	1-1/2		S-630	D-630	180	250
		40	1	1-1/2		S-640	D-640	190	270
		50	2	1-1/2		S-650	D-650	195	275
1,500 6,000	9	20	1/3	3/4	15	S-920	D-920	125	185
		30	1/2	1-1/2		S-930	D-930	180	250
		40	1	1-1/2		S-940	D-940	190	270
		50	2	1-1/2		S-950	D-950	195	275
2,000 8,000	12	20	1/3	3/4	8	S-1220-8	--	90	--
		20	1/3	3/4	15	S-1220	D-1220	125	185
		30	1/2	1-1/2		S-1230	D-1230	180	250
		40	1	1-1/2		S-1240	D-1240	190	270
		50	2	1-1/2		S-1250	D-1250	195	275
2,500 10,000	15	20	1/2	3/4	15	S-1520	D-1520	190	240
		30	3/4	1-1/2		S-1530	D-1530	185	255
		40	1	1-1/2		S-1540	D-1540	190	270
		50	2	1-1/2		S-1550	D-1550	195	275
3,750 15,000	23	20	1/2	3/4	30	S-2320	D-2320	190	240
		30	1	1-1/2		S-2330	D-2330	230	300
		40	1-1/2	1-1/2		S-2340	D-2340	240	310
		50	2	1-1/2		S-2350	D-2350	245	320
5,000 20,000	30	20	3/4	3/4	30	S-3020	D-3020	200	250
		30	1	1-1/2		S-3030	D-3030	230	300
		40	1-1/2	1-1/2		S-3040	D-3040	240	310
		50	3	1-1/2		S-3050	D-3050	255	330
6,250 25,000	38	20	3/4	1-1/2	45	S-3820	D-3820	285	350
		30	1	1-1/2		S-3830	D-3830	285	350
		40	1-1/2	1-1/2		S-3840	D-3840	290	355
		50	3	1-1/2		S-3850	D-3850	305	385
7,500 30,000	45	20	1	1-1/2	45	S-4520	D-4520	285	355
		30	1-1/2	1-1/2		S-4530	D-4530	290	355
		40	2	1-1/2		S-4540	D-4540	295	360
		50	3	1-1/2		S-4550	D-4550	305	385
10,000 40,000	60	20	1-1/2	1-1/2	60	S-6020	D-6020	335	405
		30	2	1-1/2		S-6030	D-6030	340	410
		40	2	1-1/2		S-6040	D-6040	340	410
		50	5	1-1/2		S-6050	D-6050	370	500
12,500 50,000	75	20	2	1-1/2	95	S-7520	D-7520	385	460
		30	3	1-1/2		S-7530	D-7530	395	470
		40	3	1-1/2		S-7540	D-7540	395	470
		50	5	1-1/2		S-7550	D-7550	430	560

Larger pumps and receivers available upon request.

SPECIFY WITH CONFIDENCE, SPECIFY PENN PUMP SYSTEMS

CONDENSATE RETURN UNIT

CAST IRON RECEIVERS

SYSTEM SELECTION WORKSHEET – TABLE 1

CAPACITY STEAM LBS/HR SQ. FT. E.D.R.	PUMP CAP. G.P.M.	DISCHARGE PRESSURE P.S.I.	MOTOR H.P.	PUMP DISCHARGE SIZE IN.	REC. CAP. GAL.	UNIT MODEL NO.		SHIPPING WT. LBS.	
						SIMPLEX	DUPLEX	SIMPLEX	DUPLEX
500 2,000	3	20	1/3	3/4	6	S-320		150	
		30	1/2	1-1/2		S-330		165	
		40	1	1-1/2		S-340		170	
		50	2	1-1/2		S-350		175	
1,000 4,000	6	20	1/3	3/4	6	S-620		150	
		30	1/2	1-1/2		S-630		165	
		40	1	1-1/2		S-640		170	
		50	2	1-1/2		S-650		175	
1,500 6,000	9	20	1/3	3/4	15	S-920	D-920	260	295
		30	1/2	1-1/2		S-930	D-930	295	360
		40	1	1-1/2		S-940	D-940	295	360
		50	2	1-1/2		S-950	D-950	315	395
2,000 8,000	12	20	1/3	3/4	15	S-1220	D-1220	260	295
		30	1/2	1-1/2		S-1230	D-1230	295	360
		40	1	1-1/2		S-1240	D-1240	295	360
		50	2	1-1/2		S-1250	D-1250	315	395
2,500 10,000	15	20	1/2	3/4	15	S-1520	D-1520	260	295
		30	3/4	1-1/2		S-1530	D-1530	300	365
		40	1	1-1/2		S-1540	D-1540	295	360
		50	2	1-1/2		S-1550	D-1550	315	395
3,750 15,000	23	20	1/2	3/4	24	S-2320	D-2320	300	335
		30	1	1-1/2		S-2330	D-2330	305	380
		40	1-1/2	1-1/2		S-2340	D-2340	310	390
		50	2	1-1/2		S-2350	D-2350	330	415
5,000 20,000	30	20	3/4	3/4	36	S-3020	D-3020	410	445
		30	1	1-1/2		S-3030	D-3030	355	430
		40	1-1/2	1-1/2		S-3040	D-3040	360	440
		50	3	1-1/2		S-3050	D-3050	370	460
6,250 25,000	38	20	3/4	1-1/2	36	S-3820	D-3820	350	420
		30	1	1-1/2		S-3830	D-3830	355	430
		40	1-1/2	1-1/2		S-3840	D-3840	360	440
		50	3	1-1/2		S-3850	D-3850	370	460
7,500 30,000	45	20	1	1-1/2	36	S-4520	D-4520	355	430
		30	1-1/2	1-1/2		S-4530	D-4530	360	440
		40	2	1-1/2		S-4540	D-4540	365	450
		50	3	1-1/2		S-4550	D-4550	370	460
10,000 40,000	60	20	1-1/2	1-1/2	50	S-6020	D-6020	420	500
		30	2	1-1/2		S-6030	D-6030	425	510
		40	2	1-1/2		S-6040	D-6040	425	510
		50	5	1-1/2		S-6050	D-6050	445	535
12,500 50,000	75	20	2	1-1/2	50	S-7520	D-7520	425	510
		30	3	1-1/2		S-7530	D-7530	435	525
		40	3	1-1/2		S-7540	D-7540	435	525
		50	5	1-1/2		S-7550	D-7550	445	535

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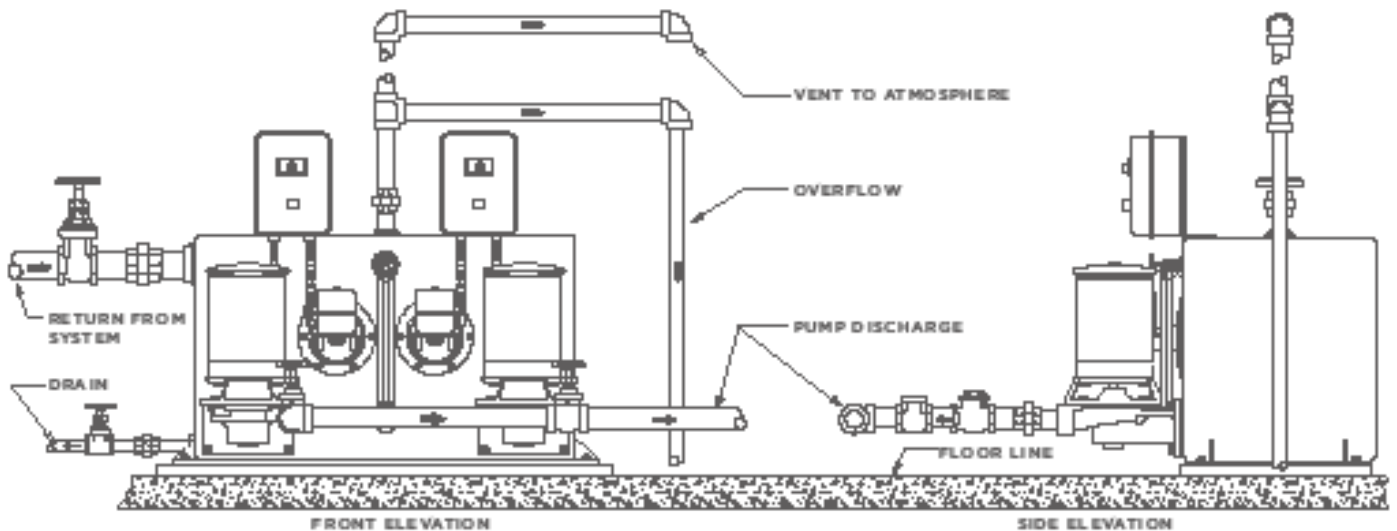
CONDENSATE RETURN UNIT SYSTEM SELECTION WORKSHEET

TABLE 2

STEEL PIPE: FRICTION LOSS (IN FEET OF HEAD) PER 100 FT. | VELOCITY FEET PER SECOND

GPM	¾"		1"		1 ¼"		1 ½"		2"		2 ½"		3"	
	ft.	ft./sec.	ft.	ft./sec.	ft.	ft./sec.	ft.	ft./sec.	ft.	ft./sec.	ft.	ft./sec.	ft.	ft./sec.
3	7.00	2.41	2.14	1.49	.57	.86	.26	.63						
6	14.7	3.61	4.55	2.23	1.20	1.29	.56	.94	.20	.61				
12	53.0	7.22	16.4	4.46	4.30	2.57	2.01	1.89	.79	1.23	.23	.78	.10	.54
15	80.0	9.02	25.0	5.60	6.50	3.21	3.00	2.36	1.08	1.53	.36	.98	.15	.68
25			64.0	9.30	16.6	5.36	7.30	3.80	2.73	2.55	2.73	1.63	.38	1.13
30			89.0	11.15	23.0	6.43	11.0	4.72	3.84	3.06	1.29	1.96	.54	1.36
38			152.0	14.88	40.0	8.58	18.8	6.30	6.60	4.08	2.20	2.61	.91	1.82
45					50.0	9.65	23.2	7.08	8.20	4.60	2.80	2.94	1.15	2.04
60					85.0	12.87	39.6	9.44	13.9	6.13	4.65	3.92	1.92	2.72
75					129.0	16.06	60.0	11.80	20.9	7.66	7.10	4.91	3.00	3.33
100							102.0	15.74	35.8	10.21	12.0	6.54	4.96	4.54
150									76.0	15.32	25.5	9.81	10.5	6.82

TYPICAL DUPLEX INSTALLATION



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