



CHECKLIST FOR SIZING THE EMECH™ STEAM WATER MIXER

INFORMATION REQUIRED TO SIZE THE VALVE:

- Running water pressure drop* (psi)
- Steam pressure drop** (psi)
- Water temperature rise required (dT) °Fahrenheit.
- Required flow (U.S. gpm)

- NOTES:**
- * The “Water Pressure Drop” is the difference between the running water pressure at the water inlet port and the outlet port.
 - ** The “Steam Pressure Drop” is the difference between the running steam pressure at the steam inlet port and the pressure at the outlet port.

TO SIZE THE VALVE:

- 1) Determine the cold water capacity of the valve using the “Cold Water Capacity” column with the “Water Pressure Drop” column.
- 2) Using the “Steam Pressure Drop” column, locate the steam pressure available at the valve steam inlet port. Determine the “Temperature Rise” required by subtracting the inlet water temperature from the desired water temperature. Go across the columns to locate the temperature rise required to find the flow (U.S. gpm) the Emech™ valve can heat to the required temperature.
- 3) Compare the capacities found in steps 1 and 2. The LOWER of these two capacities is the maximum amount of hot water that size valve can produce to the desired temperature.

NOTE: A minimum flow rate must be established for there to be effective mixing, and temperature control. The approximate minimum flows for effective steam water mixing are shown in Table 1 below.

Table 1: Minimum Flow for Effective Mixing and Temperature Control.		
Emech™ Valve Model	Size	Min Flow (U.S. gpm)
25S	1”	4
40S	1 ½”	6
50S	2”	26

SIZING EXAMPLE:

Using the 1” size valve (25S). Assume the running water pressure drop is 60 psi, and the steam pressure drop is 40 psi. The 1” valve can pass 72 U.S. gpm of cold water, but can only heat 14 U.S. gpm with a 100 °F temperature rise.

Therefore the capacity of the mixer for this case is only 14 U.S. gpm. If the steam pressure could be raised to 100 psi, the capacity of the same unit would be 35 U.S. gpm, 100 °F temperature rise.

SAFETY FEATURES OF THE EMECH™ STEAM WATER MIXER:

- If the cold water supply fails the valve will be closed within approximately two seconds.
- If the temperature sensor fails the valve will be closed within approximately two seconds.
- The actuator has a manual override handle enabling operation of the valve when there is no power supply.



Emech™ Steam Water Mixer Capacity Charts

1" Emech™ Valve (25S)														
Water Pressure Drop (psi)	Steam Pressure Drop (psi)	Cold Water Capacity (U.S. gpm)	Capacity (U.S. gpm) at Temperature Rise (°F)											
			5	10	15	20	30	40	60	80	100	120	140	160
5	5	21	21	18	12	9	6	4	3*	2*	2*	1*	1*	1*
10	10	29	29	29	24	18	12	9	6	4	4	3*	3*	2*
15	15	36	36	36	36	27	18	13	9	7	5	5	4	3*
20	20	41	41	41	41	36	24	18	12	9	7	6	5	4
30	30	51	51	51	51	51	36	27	18	13	11	9	8	7
40	40	59	59	59	59	59	48	36	24	18	14	12	10	9
50	50	65	65	65	65	65	59	45	30	22	18	15	13	11
60	60	72	72	72	72	72	72	53	36	27	21	18	15	13
70	70	77	77	77	77	77	77	62	41	31	25	21	18	16
80	80	83	83	83	83	83	83	71	47	36	28	24	20	18
90	90	88	88	88	88	88	88	80	53	40	32	27	23	20
100	100	93	93	93	93	93	93	89	59	44	35	30	25	22
110	110	97	97	97	97	97	97	97	65	49	39	33	28	24
120	120	101	101	101	101	101	101	101	71	53	43	35	30	27
130	130	106	106	106	106	106	106	106	77	58	46	38	33	29

* Contact Armstrong Int. for operation at these conditions

1 1/2" Emech™ Valve (40S)														
Water Pressure Drop (psi)	Steam Pressure Drop (psi)	Cold Water Capacity (U.S. gpm)	Capacity (U.S. gpm) at Temperature Rise (°F)											
			5	10	15	20	30	40	60	80	100	120	140	160
5	5	32	32	30	20	15	10	7	5*	4*	3*	2*	2*	2*
10	10	45	45	45	39	29	19	14	10	7	6	5*	4*	4*
15	15	55	55	55	55	44	29	22	14	11	9	7	6	5*
20	20	63	63	63	63	58	39	29	19	14	11	10	8	7
30	30	77	77	77	77	77	58	43	29	21	17	14	12	11
40	40	89	89	89	89	89	77	58	38	29	23	19	16	14
50	50	100	100	100	100	100	96	72	48	36	29	24	20	18
60	60	109	109	109	109	109	109	86	57	43	34	29	24	21
70	70	118	118	118	118	118	118	100	67	50	40	33	29	25
80	80	126	126	126	126	126	126	115	76	57	46	38	33	28
90	90	134	134	134	134	134	134	130	86	64	51	43	37	32
100	100	141	141	141	141	141	141	141	95	71	57	48	41	36
110	110	148	148	148	148	148	148	148	105	79	63	52	45	39
120	120	155	155	155	155	155	155	155	115	86	69	57	49	43
130	130	161	161	161	161	161	161	161	124	93	74	62	53	46

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2" Emech™ Valve (50S)														
Water Pressure Drop (psi)	Steam Pressure Drop (psi)	Cold Water Capacity (U.S. gpm)	Capacity (U.S. gpm) at Temperature Rise (°F)											
			5	10	15	20	30	40	60	80	100	120	140	160
5	5	86	86	86	59	46	31	24*	16*	12*	10*	8*	7*	6*
10	10	121	121	121	119	91	62	47	32	24*	19*	16*	14*	12*
15	15	149	149	149	149	137	93	71	48	36	29	24*	21*	18*
20	20	172	172	172	172	172	124	94	63	48	38	32	28	24*
30	30	210	210	210	210	210	186	141	95	72	58	48	41	36
40	40	243	243	243	243	243	243	188	127	96	77	64	55	48
50	50	272	272	272	272	272	272	235	158	120	96	80	69	60
60	60	297	297	297	297	297	297	282	190	143	115	96	83	72
70	70	321	321	321	321	321	321	321	222	167	134	112	96	84
80	80	343	343	343	343	343	343	343	253	191	153	128	110	96
90	90	364	364	364	364	364	364	364	285	215	173	144	124	108
100	100	384	384	384	384	384	384	384	317	239	192	160	138	120
110	110	403	403	403	403	403	403	403	349	263	211	176	151	133
120	120	421	421	421	421	421	421	421	380	287	230	192	165	145
130	130	438	438	438	438	438	438	438	412	311	249	208	179	157

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