

STEAM

LIQUID

GAS

NICE
Instrumentation, Inc.

MASS FLOW!
Compensation

Saturated Steam Tables

FVP



Flanged Vortex Plate

VP



Vortex Plate

LPIV



**Low Profile
Insertion Vortex**

HTIV



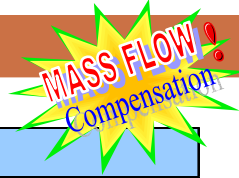
**Hot Tap
Insertion Vortex**

Where Flow Measurement Meets Innovation...

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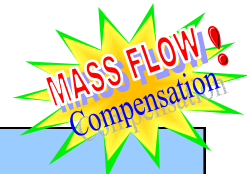


Measurable Flow Rates for HTIV and LPIV



Saturated Steam Minimum and Maximum Flow Rates (lb/hr)									
Pressure ² (Density) ³	2"	3"	4"	6"	8"	12"	16"	24"	36"
5 (.0486)	55 1025	120 2,250	215 3,875	498 8,800	850 15,200	1,900 34,000	2,989 53,750	6,900 123,000	16,200 284,000
50 (.1503)	115 3,160	255 7,000	455 12,000	1,050 27,200	1,800 47,000	4,050 106,000	6,500 167,000	14,500 378,000	34,050 880,000
100 (.2577)	170 5,450	385 11,950	670 20,550	1,500 47,010	2,600 81,000	5,900 180,000	9,300 285,000	26,000 807,000	49,000 1,505,000
150 (.3614)	215 7,600	480 16,700	830 29,000	1,900 65,300	3,300 115,000	7,400 253,000	11,700 400,050	26,600 909,000	61,000 2,112,000
200 (.4688)	255 9,850	575 22,000	989 37,400	2,250 85,000	3,925 147,000	8,800 330,000	13,900 518,000	31,700 1,180,000	73,000 2,740,000
300 (.6481)	315 13,600	720 30,000	1,225 52,000	2,790 118,000	4,900 203,000	10,900 453,400	17,000 716,000	39,300 1,630,000	91,500 3,787,000
400 (.8613)	389 18,100	855 40,000	1,500 68,600	3,400 155,500	5,900 270,000	13,200 603,000	20,900 951,500	47,500 2,165,000	110,000 5,033,000
500 (1.122)	486 22,625	1,069 50,000	1,875 85,750	4,250 194,375	7,375 337,500	16,500 753,750	26,125 1,189,375	59,375 2,706,250	137,500 6,291,250
1000 (2.279)	1,011 47,060	2,223 104,000	3,900 178,360	8,840 404,300	15,340 702,000	34,320 1,567,800	54,340 2,473,900	123,500 5,629,000	6,291,250 13,085,800

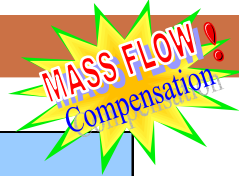
- 2. psig
- 3. lb/ft³



Saturated Steam Minimum and Maximum Flow Rates (kg/hr)									
Pressure ⁴ (Density) ⁵	50mm	80mm	100mm	150mm	200mm	300mm	400mm	600mm	900mm
.4 (.7779)	26.25 465	58 1020	98 1760	225 4,000	389 6,900	880 15,500	1,355 24,350	3,100 55,300	7,300 130,000
3.4 (2.372)	55.50 1,450	120 3,110	198 5,350	470 12,150	830 21,050	1,825 47,000	2,900 74,200	6,600 169,000	15,500 392,500
6.9 (4.127)	80 2,460	165 5,400	300 9,300	690 21,200	1,200 37,000	2,700 82,000	4,200 129,100	9,600 294,000	22,400 683,000
11 (6.125)	98 3,640	225 8,020	390 13,800	898 31,350	1,500 54,225	3,400 121,300	5,500 192,000	12,600 436,000	29,000 1,013,300
13.8 (7.508)	115 4,460	255 9,850	440 17,000	998 38,400	1,700 66,500	4,000 149,000	6,300 235,000	14,400 534,500	33,500 1,245,000
20.7 (10.38)	145 6,175	315 13,600	555 23,400	1,275 53,100	2,200 92,000	4,900 206,000	7,800 325,000	17,800 740,000	41,000 1,717,250
27 (13.79)	175 8,200	390 18,100	675 31,100	1,500 70,550	2,600 122,200	6,000 273,300	9,400 431,500	21,500 981,500	50,000 2,283,000
34.5 (17.969)	220 10,260	484 22,675	850 38,888	1,927 88,151	3,344 15,3061	7,482 341,836	11,848 539,399	26,927 1,227,324	62,358 2,853,174
69 (36.5)	458 21,342	1,008 47,165	1,768 80,888	4,009 183,356	6,956 318,367	15,564 711,020	2,4643 1,121,950	5,6009 2,552,834	129,705 5,934,603

- 4. bar
- 5. kg/m³

Measurable Flow Rates for VP



Saturated Steam Minimum and Maximum Flow Rates (lb/hr)								
Pressure ² (Density) ³	3/4"	1"	1.5"	2"	3"	4"	6"	8"
5 (.0486)	7.4 132	12.40 220	30.60 537	51.25 901	110 2,005	200 3,500	450 7,920	960 16,200
50 (.1503)	15.80 410	26.40 676	65.25 1,616	105 2,775	240 6,210	420 11,000	960 24,500	1,950 53,200
100 (.2577)	22.80 702	38 1,158	92 2,850	150 4,760	340 10,650	598 18,550	1,375 42,000	2,780 98,700
150 (.3614)	28.50 980	47.50 1,630	110 4,000	190 6,670	425 15,000	760 26,000	1,710 58,900	3,600 128,000
200 (.4688)	34 1,270	55 2,110	135 5,190	230 8,660	519 19,360	898 33,700	1,998 76,380	2,300 167,000
300 (.6481)	42 1,760	70 3,000	170 7,200	280 12,000	640 26,800	1,100 46,600	2,540 106,000	6,300 220,000
400 (.8613)	50 2,330	85 3,880	198 9,530	340 15,900	775 35,600	1,355 61,900	3,010 140,500	7,200 330,000
500 (1.122)	61 3,023	99 4,906	250 12,390	418 20,710	996 49,361	1,627 80,634	3,688 182,777	8,960 403,000
1000 (2.279)	98 6,151	158 9,917	400 25,108	670 42,055	1,499 94,092	2,609 163,766	5,914 371,221	12,040 792,330

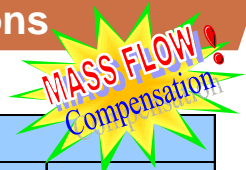
- 2. psig
- 3. lb/ft³



Saturated Steam Minimum and Maximum Flow Rates (kg/hr)								
Pressure ⁴ (Density) ⁵	18.75mm	25mm	40mm	50mm	75mm	100mm	150mm	200mm
.4 (.7779)	3.40 59.60	5.6 99.50	13.90 244	23.30 407	52 910	90.50 1,585	203 3,590	430 8,200
3.4 (2.372)	7.10 182	11.90 302	29.30 742	49 1,240	109 2,775	190 4,830	430 10,980	980 23,600
6.9 (4.127)	10.30 316	17.20 526	42.40 1,290	70.80 2,160	158 4,830	276 8,400	625 19,040	1,290 21,600
11 (6.125)	13.50 470	22.40 780	55.20 1,915	92.20 3,201	206 7,160	359 12,465	814 28,255	1,720 36,400
13.8 (7.508)	15.45 575	25.75 1002	63.2 2,350	105 3,925	236 8,777	411 15,280	933 34,640	2,225 68,700
20.7 (10.38)	19.20 795	31.90 1,321	78.50 3,246	131 5,425	293 12,135	510 21,120	1,150 47,885	2,430 102,000
27 (13.79)	23.20 1,056	38.60 1,756	94.90 4,320	158 7,210	354 16,130	617 28,070	1,400 63,640	3,100 138,600
34.5 (17.969)	27.66 1,370	44.89 2,224	113 5,619	189 9,392	451 22,385	737 36,568	1,672 82,892	4,063 182,766
69 (36.5)	44 2,789	71.65 4,497	181 11,386	303 19,072	679 42,672	1,183 74,270	2682 168,354	5460 359,333

- 4. bar
- 3. kg/m³

Measurable Flow Rates *FVP* w/ Low Flow Range Options



Saturated Steam Minimum and Maximum Flow Rates (lb/hr)																	
Pressure ² (Density) ³	3/4"	1"			1.5"		2"			3"		4"		6"		8"	
Model #	750	1000	1750	1500	1510	2000	2150	2100	3000	3200	4000	4300	6000	6400	8000	8600	
5 (.0486)	7.4 132	12.40 220	7.38 132	30.60 537	12.39 220	51.25 901	30.60 537	12.40 220	110 2,005	51.25 901	200 3,500	110 2,005	450 7,920	200 3,500	960 16,200	450 7,920	
50 (.1503)	15.80 410	26.40 676	15.78 410	65.25 1,616	26.39 676	105 2,775	65.24 1,616	26.40 676	240 6,210	105 2,775	420 11,000	240 6,210	960 24,500	420 11,000	1,950 53,200	960 24,500	
100 (.2577)	22.80 702	38 1,158	22.78 702	92 2,850	37.98 1,158	150 4,760	92 2,850	38 1,158	340 10,650	150 4,760	598 18,550	340 10,650	1,375 42,000	598 18,550	2,780 98,700	1,375 42,000	
150 (.3614)	28.50 980	47.50 1,630	28.48 980	110 4,000	47.48 1,630	190 6,670	110 4,000	47.50 1,630	425 15,000	190 6,670	760 26,000	425 15,000	1,710 58,900	760 26,000	3,600 128,000	1,710 58,900	
200 (.4688)	34 1,270	55 2,110	33.98 1,270	135 5,190	54.98 2,110	230 8,660	135 5,190	55 2,110	519 19,360	230 8,660	898 33,700	519 19,360	1,998 76,380	898 33,700	2,300 167,000	1,998 76,380	
300 (.6481)	42 1,760	70 3,000	41.98 1,760	170 7,200	69.98 3,000	280 12,000	170 7,200	70 3,000	640 26,800	280 12,000	1,100 46,600	640 26,800	2,540 106,000	1,100 46,600	6,300 220,000	2,540 106,000	
400 (.8613)	50 2,330	85 3,880	49.98 2,330	198 9,530	84.98 3,880	340 15,900	198 9,530	85 3,880	775 35,600	340 15,900	1,355 61,900	775 35,600	3,010 140,500	1,355 61,900	7,200 330,000	3,010 140,500	
500 (1.122)	61 3,023	99 4,906	61 3,023	250 12,390	99 4,906	418 20,710	250 12,390	99 4,906	996 49,361	418 20,710	1,627 80,634	996 49,361	3,688 182,777	1,627 80,634	8,960 403,000	3,688 182,777	
1000 (2.279)	98 6,151	158 9,917	98 6,151	400 25,108	158 9,917	670 42,055	400 25,108	158 9,917	1,499 94,092	670 42,055	2,609 163,76	1,499 94,092	5,914 371,221	2,609 163,766	12,040 792,330	5,914 371,221	

2. psig
3. lb/ft³

= Standard Range

& = Low Flow Range Options



Saturated Steam Minimum and Maximum Flow Rates (kg/hr)																	
Pressure ⁴ (Density) ⁵	18.75 mm	25mm			40mm		50mm			75mm		100mm		150mm		200mm	
Model #	750	1000	1750	1500	1510	2000	2150	2100	3000	3200	4000	4300	6000	6400	8000	8600	
.4 (.7779)	3.40 59.60	5.6 99.50	3.40 59.60	13.90 244	5.6 99.50	23.30 407	13.90 244	5.6 99.50	52 910	23.30 407	90.50 1,585	52 910	203 3,590	90.50 1,585	430 8,200	203 3,590	
3.4 (2.372)	7.10 182	11.90 302	7.10 182	29.30 742	11.90 302	49 1,240	29.30 742	11.90 302	109 2,775	49 1,240	190 4,830	109 2,775	430 10,980	190 4,830	980 23,600	430 10,980	
6.9 (4.127)	10.30 316	17.20 526	10.30 316	42.40 1,290	17.20 526	70.80 2,160	42.40 1,290	17.20 526	158 4,830	70.80 2,160	276 8,400	158 4,830	625 19,040	276 8,400	1,290 21,600	625 19,040	
11 (6.125)	13.50 470	22.40 780	13.50 470	55.20 1,915	22.40 780	92.20 3,201	55.20 1,915	22.40 780	206 7,160	92.20 3,201	359 12,465	206 7,160	814 28,255	359 12,465	1,720 36,400	814 28,255	
13.8 (7.508)	15.45 575	25.75 1002	15.45 575	63.2 2,350	25.75 1002	105 3,925	63.2 2,350	25.75 1002	236 8,777	105 3,925	411 15,280	236 8,777	933 34,640	411 15,280	2,225 68,700	933 34,640	
20.7 (10.38)	19.20 795	31.90 1,321	19.20 795	78.50 3,246	31.90 1,321	131 5,425	78.50 3,246	31.90 1,321	293 12,135	131 5,425	510 21,120	293 12,135	1,150 47,885	510 21,120	2,430 102,000	1,150 47,885	
27 (13.79)	23.20 1,056	38.60 1,756	23.20 1,056	94.90 4,320	38.60 1,756	158 7,210	94.90 4,320	38.60 1,756	354 16,130	158 7,210	617 28,070	354 16,130	1,400 63,640	617 28,070	3,100 138,600	1,400 63,640	
34.5 (17.969)	27.66 1,370	44.89 2,224	27.66 1,370	113 5,619	44.89 2,224	189 9,392	113 5,619	44.89 2,224	451 22,385	189 9,392	737 36,568	451 22,385	1,672 82,892	737 36,568	4,063 182,766	1,672 82,892	
69 (36.5)	44 2,789	71.65 4,497	44 2,789	181 11,386	71.65 4,497	303 19,072	181 11,386	71.65 4,497	679 42,672	303 19,072	1,183 74,270	679 42,672	2,682 168,35	1,183 74,270	5,460 359,333	2,682 168,354	

4. bar

3. kg/m³

= Standard Range

& = Low Flow Range Options