

SERIES D Capacity Table

Pilot-Operated, Full-Port Reducing Valves

(maximum capacities – lbs/hr)

| Inlet Steam Pressure (psig) | Outlet Steam Pressure (psig) | Series "D" Valve Size | | | | | | | | | |
|------------------------------|------------------------------|-----------------------|------|------|--------|--------|-------|--------|-------|-------|--------|
| | | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2" | 2 1/2" | 3" | 4" | 6" |
| C_v Factors | | 3.8 | 6.7 | 11 | 15 | 21 | 37 | 55 | 71 | 113 | 241 |
| 5* | 0 | 85 | 150 | 250 | 350 | 500 | 800 | 1200 | 1600 | 2600 | 5500 |
| | 2 | 80 | 140 | 230 | 310 | 440 | 770 | 1100 | 1500 | 2400 | 5100 |
| 7* | 0 | 115 | 200 | 325 | 450 | 600 | 1100 | 1650 | 2100 | 3600 | 7800 |
| | 2 | 105 | 180 | 300 | 400 | 575 | 1000 | 1500 | 2000 | 3100 | 6700 |
| | 3 | 90 | 160 | 275 | 375 | 525 | 900 | 1300 | 1800 | 2800 | 6000 |
| 10* | 0 | 150 | 260 | 425 | 575 | 850 | 1500 | 2200 | 2800 | 4600 | 9900 |
| | 2 | 140 | 240 | 400 | 550 | 800 | 1400 | 2100 | 2700 | 4300 | 9100 |
| | 5 | 100 | 175 | 300 | 400 | 600 | 1000 | 1600 | 2000 | 3200 | 6900 |
| 12* | 0 | 160 | 280 | 475 | 600 | 900 | 1600 | 2400 | 3100 | 4900 | 10300 |
| | 4 | 140 | 240 | 400 | 550 | 800 | 1400 | 2100 | 2700 | 4300 | 9100 |
| | 7 | 125 | 200 | 375 | 500 | 700 | 1200 | 1900 | 2400 | 3800 | 8200 |
| 15 | 0-3 | 190 | 325 | 550 | 750 | 1000 | 1800 | 2700 | 3500 | 5600 | 12000 |
| | 5 | 175 | 300 | 500 | 700 | 900 | 1700 | 2500 | 3200 | 5200 | 11100 |
| | 8 | 140 | 250 | 400 | 500 | 800 | 1300 | 2000 | 2600 | 4200 | 8900 |
| 20 | 0-5 | 210 | 375 | 625 | 850 | 1200 | 2100 | 3100 | 4000 | 6400 | 13700 |
| | 10 | 190 | 325 | 550 | 750 | 1000 | 1800 | 2700 | 3500 | 5600 | 12000 |
| | 12 | 170 | 300 | 500 | 675 | 950 | 1600 | 2500 | 3200 | 5100 | 10800 |
| 25 | 0-7 | 250 | 450 | 775 | 1050 | 1500 | 2600 | 3800 | 5000 | 7900 | 16900 |
| | 10 | 225 | 425 | 700 | 975 | 1300 | 2400 | 3600 | 4600 | 7300 | 15600 |
| | 15 | 200 | 350 | 600 | 800 | 1100 | 2000 | 3000 | 3900 | 6200 | 13200 |
| 30 | 0-12 | 275 | 500 | 800 | 1100 | 1500 | 2700 | 4100 | 5200 | 8300 | 17800 |
| | 15 | 250 | 450 | 750 | 1000 | 1400 | 2500 | 3800 | 4900 | 7800 | 16600 |
| | 20 | 225 | 375 | 650 | 850 | 1200 | 2100 | 3200 | 4100 | 6500 | 14000 |
| 40 | 0-18 | 350 | 600 | 1000 | 1350 | 1900 | 3300 | 5000 | 6400 | 10300 | 21900 |
| | 25 | 300 | 500 | 850 | 1150 | 1600 | 2800 | 4200 | 5400 | 8700 | 18500 |
| | 30 | 250 | 425 | 700 | 1000 | 1400 | 2500 | 3700 | 4700 | 7600 | 16100 |
| 50 | 0-20 | 400 | 700 | 1200 | 1650 | 2300 | 4100 | 6000 | 7800 | 12400 | 26500 |
| | 30 | 350 | 650 | 1100 | 1500 | 2000 | 3600 | 5400 | 6900 | 11000 | 23600 |
| | 40 | 275 | 500 | 800 | 1100 | 1500 | 2700 | 4100 | 5200 | 8300 | 17800 |
| 60 | 0-30 | 475 | 850 | 1350 | 1900 | 2600 | 4600 | 6900 | 8900 | 14200 | 30300 |
| | 35 | 425 | 775 | 1250 | 1700 | 2400 | 4300 | 6400 | 8200 | 13100 | 27900 |
| | 50 | 300 | 525 | 850 | 1200 | 1600 | 2900 | 4300 | 5600 | 8900 | 19000 |
| 75 | 0-35 | 575 | 1000 | 1650 | 2300 | 3200 | 5600 | 8300 | 10800 | 17200 | 36600 |
| | 50 | 475 | 825 | 1350 | 1900 | 2600 | 4600 | 6900 | 8900 | 14100 | 30100 |
| | 60 | 400 | 700 | 1150 | 1600 | 2200 | 3900 | 5800 | 7400 | 11800 | 25200 |
| 90 | 0-45 | 675 | 1200 | 1950 | 2700 | 3700 | 6600 | 9800 | 12700 | 20200 | 43100 |
| | 60 | 575 | 1000 | 1700 | 2300 | 3200 | 5700 | 8500 | 10900 | 17400 | 37100 |
| | 75 | 425 | 750 | 1200 | 1700 | 2300 | 4100 | 6100 | 7900 | 12600 | 27000 |
| 100 | 0-50 | 750 | 1300 | 2100 | 3000 | 4100 | 7300 | 10800 | 14000 | 22200 | 47500 |
| | 60 | 700 | 1200 | 2000 | 2700 | 3800 | 6700 | 10000 | 12900 | 20500 | 43800 |
| | 80 | 500 | 875 | 1400 | 1900 | 2700 | 4800 | 7100 | 9200 | 14700 | 31300 |
| 125 | 0-60 | 925 | 1650 | 2700 | 3700 | 5200 | 9100 | 14000 | 17500 | 28000 | 59500 |
| | 75 | 825 | 1475 | 2400 | 3300 | 4600 | 8200 | 12200 | 15700 | 25000 | 53500 |
| | 100 | 625 | 1100 | 1800 | 2500 | 3500 | 6200 | 9200 | 11900 | 19000 | 40400 |
| 150 | 0-75 | 1100 | 1900 | 3100 | 4300 | 6000 | 10600 | 15800 | 20400 | 32400 | 69100 |
| | 100 | 925 | 1600 | 2700 | 3600 | 5100 | 9000 | 13400 | 17400 | 27700 | 59000 |
| | 125 | 650 | 1150 | 1900 | 2600 | 3600 | 6400 | 9500 | 12300 | 19600 | 41900 |
| 175 | 0-85 | 1275 | 2250 | 3700 | 5000 | 7100 | 12500 | 18600 | 24000 | 38200 | 81400 |
| | 125 | 1000 | 1800 | 2900 | 4000 | 5600 | 9900 | 14700 | 18900 | 30100 | 64300 |
| | 150 | 750 | 1300 | 2100 | 2900 | 4100 | 7300 | 10800 | 14000 | 22200 | 47500 |
| 200 | 0-100 | 1450 | 2500 | 4200 | 5700 | 8000 | 14100 | 21000 | 27100 | 43100 | 92000 |
| | 125 | 1300 | 2300 | 3700 | 5100 | 7100 | 12600 | 18700 | 24100 | 38400 | 81900 |
| | 150 | 1075 | 1900 | 3100 | 4300 | 6000 | 10600 | 15700 | 20300 | 32300 | 68900 |
| 225 | 0-120 | 1575 | 2800 | 4600 | 6200 | 8700 | 15400 | 22900 | 29500 | 47000 | 100200 |
| | 150 | 1450 | 2500 | 4200 | 5700 | 8000 | 14100 | 21000 | 27200 | 43300 | 92300 |
| | 175 | 1350 | 2400 | 3900 | 5300 | 7400 | 13100 | 19500 | 25200 | 40100 | 85500 |
| 250 | 0-130 | 1750 | 3100 | 5100 | 6900 | 9700 | 17100 | 25500 | 32900 | 53400 | 111800 |
| | 150 | 1650 | 2900 | 4700 | 6500 | 9100 | 16000 | 23800 | 30800 | 49000 | 104600 |
| | 200 | 1200 | 2100 | 3500 | 4800 | 6700 | 11900 | 17600 | 22800 | 36200 | 77300 |

* Shaded portion is for sizing temperature pilot, solenoid, or temperature-solenoid combination valves only.

Watson McDaniel reserves the right to change the designs and/or materials of its products without notice



WATSON McDANIEL COMPANY

975 Madison Ave. Valley Forge Corporate Center Norristown, PA 19403

www.watsonmcdaniel.com 610 666-5711 Fax 610 666-0404

Manufacturers of:

**PRESSURE & TEMPERATURE REGULATORS - RELIEF VALVES - STEAM TRAPS - CLEAN STEAM PRODUCTS
LIQUID DRAINERS - PRESSURE PUMPS - EJECTORS - SPECIALTY PRODUCTS**



ASME Sect VIII Div I

PR-570-5

PILOT OPERATED REGULATORS

SERIES D Capacity Table

Pilot-Operated, Reduced-Port Reducing Valves

(maximum capacities – lbs/hr)

| Inlet Steam Pressure (psig) | Outlet Steam Pressure (psig) | Series "D" Valve Size | | | | | | | | | |
|-----------------------------|------------------------------|-----------------------|------|------|--------|--------|------|--------|-------|-------|-------|
| | | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2" | 2 1/2" | 3" | 4" | 6" |
| C _v Factors | | 1.4 | 3.3 | 5.6 | 7.8 | 13.3 | 18.8 | 25.9 | 41.7 | 74 | 163 |
| 5* | 0 | 15 | 35 | 59 | 82 | 140 | 197 | 272 | 438 | 777 | 1712 |
| | 2 | 13 | 32 | 53 | 75 | 128 | 181 | 249 | 401 | 712 | 1569 |
| 7* | 0 | 21 | 48 | 82 | 115 | 195 | 276 | 381 | 613 | 1088 | 2396 |
| | 2 | 20 | 46 | 79 | 110 | 187 | 265 | 365 | 587 | 1042 | 2296 |
| | 3 | 19 | 44 | 74 | 104 | 177 | 250 | 344 | 554 | 983 | 2165 |
| 10* | 0 | 29 | 70 | 117 | 164 | 279 | 395 | 544 | 876 | 1554 | 3423 |
| | 2 | 28 | 68 | 115 | 160 | 274 | 387 | 533 | 858 | 1523 | 3354 |
| | 5 | 25 | 60 | 102 | 142 | 242 | 342 | 471 | 758 | 1346 | 2964 |
| 12* | 0 | 35 | 83 | 141 | 197 | 335 | 473 | 653 | 1051 | 1865 | 4108 |
| | 4 | 33 | 78 | 133 | 185 | 316 | 446 | 615 | 990 | 1758 | 3873 |
| | 7 | 29 | 68 | 115 | 160 | 272 | 385 | 530 | 854 | 1515 | 3336 |
| 15 | 0-3 | 43 | 102 | 173 | 241 | 410 | 580 | 800 | 1287 | 2284 | 5031 |
| | 5 | 41 | 98 | 166 | 232 | 395 | 558 | 769 | 1238 | 2198 | 4841 |
| | 8 | 37 | 88 | 149 | 208 | 354 | 500 | 690 | 1111 | 1972 | 4343 |
| 20 | 0-5 | 57 | 134 | 227 | 317 | 541 | 764 | 1053 | 1696 | 3009 | 6629 |
| | 10 | 51 | 120 | 204 | 284 | 483 | 684 | 942 | 1517 | 2692 | 5929 |
| | 12 | 47 | 111 | 188 | 262 | 447 | 632 | 870 | 1401 | 2486 | 5477 |
| 25 | 0-7 | 70 | 166 | 282 | 393 | 670 | 948 | 1305 | 2102 | 3730 | 8215 |
| | 10 | 67 | 158 | 269 | 375 | 640 | 905 | 1246 | 2006 | 3561 | 7843 |
| | 15 | 59 | 139 | 235 | 328 | 559 | 790 | 1088 | 1751 | 3108 | 6846 |
| 30 | 0-12 | 81 | 190 | 323 | 450 | 768 | 1085 | 1495 | 2408 | 4273 | 9411 |
| | 15 | 76 | 180 | 305 | 426 | 726 | 1025 | 1413 | 2275 | 4037 | 8892 |
| | 20 | 66 | 155 | 263 | 366 | 625 | 883 | 1216 | 1958 | 3475 | 7654 |
| 40 | 0-18 | 105 | 248 | 420 | 585 | 998 | 1410 | 1943 | 3128 | 5551 | 12227 |
| | 25 | 99 | 199 | 367 | 511 | 872 | 1232 | 1698 | 2734 | 4852 | 10688 |
| | 30 | 78 | 183 | 311 | 433 | 739 | 1044 | 1439 | 2317 | 4111 | 9056 |
| 50 | 0-20 | 135 | 318 | 539 | 751 | 1280 | 1809 | 2492 | 4013 | 7121 | 15686 |
| | 30 | 118 | 277 | 470 | 655 | 1117 | 1579 | 2175 | 3502 | 6216 | 13692 |
| | 40 | 88 | 208 | 353 | 491 | 838 | 1184 | 1632 | 2627 | 4662 | 10269 |
| 60 | 0-30 | 153 | 360 | 611 | 851 | 1451 | 2051 | 2826 | 4550 | 8074 | 17786 |
| | 35 | 143 | 338 | 573 | 798 | 1361 | 1924 | 2651 | 4268 | 7573 | 16682 |
| | 50 | 98 | 230 | 390 | 543 | 926 | 1309 | 1804 | 2904 | 5154 | 11353 |
| 75 | 0-35 | 195 | 460 | 780 | 1086 | 1853 | 2619 | 3608 | 5809 | 10308 | 22706 |
| | 50 | 164 | 387 | 657 | 916 | 1561 | 2207 | 3040 | 4895 | 8687 | 19135 |
| | 60 | 132 | 312 | 529 | 737 | 1257 | 1777 | 2448 | 3941 | 6993 | 15404 |
| 90 | 0-45 | 229 | 540 | 916 | 1277 | 2177 | 3077 | 4239 | 6825 | 12112 | 26680 |
| | 60 | 197 | 465 | 789 | 1100 | 1874 | 2648 | 3649 | 5874 | 10425 | 22962 |
| | 75 | 146 | 345 | 585 | 815 | 1389 | 1964 | 2705 | 4357 | 7731 | 17029 |
| 100 | 0-50 | 255 | 600 | 1018 | 1419 | 2419 | 3419 | 4710 | 7584 | 13458 | 29644 |
| | 60 | 235 | 554 | 940 | 1310 | 2234 | 3158 | 4351 | 7006 | 12432 | 27384 |
| | 80 | 176 | 416 | 706 | 983 | 1676 | 2367 | 3263 | 5254 | 9324 | 20538 |
| 125 | 0-60 | 322 | 760 | 1290 | 1796 | 3063 | 4329 | 5964 | 9603 | 17041 | 37536 |
| | 75 | 294 | 693 | 1176 | 1638 | 2793 | 3948 | 5439 | 8757 | 15540 | 34230 |
| | 100 | 221 | 518 | 882 | 1229 | 2095 | 2961 | 4079 | 6568 | 11655 | 25672 |
| 150 | 0-75 | 381 | 900 | 1527 | 2128 | 3628 | 5128 | 7065 | 11376 | 20187 | 44467 |
| | 100 | 329 | 775 | 1315 | 1831 | 3123 | 4414 | 6081 | 9791 | 17374 | 38270 |
| | 125 | 243 | 575 | 975 | 1385 | 2316 | 3274 | 4510 | 7261 | 12885 | 28382 |
| 175 | 0-85 | 449 | 1060 | 1800 | 2505 | 4272 | 6939 | 9320 | 13396 | 23771 | 52362 |
| | 125 | 360 | 849 | 1440 | 2006 | 3421 | 4835 | 6661 | 10725 | 19032 | 41923 |
| | 150 | 265 | 625 | 1060 | 1476 | 2518 | 3558 | 5606 | 7893 | 14008 | 30855 |
| 200 | 0-100 | 509 | 1200 | 2037 | 2837 | 4838 | 6838 | 9420 | 15168 | 26916 | 59288 |
| | 125 | 459 | 1082 | 1836 | 2557 | 4360 | 6164 | 8492 | 13672 | 24262 | 53442 |
| | 150 | 389 | 917 | 1556 | 2167 | 3695 | 5223 | 7195 | 11584 | 20557 | 45232 |
| 225 | 0-120 | 560 | 1319 | 2238 | 3117 | 5360 | 7514 | 10351 | 16667 | 29577 | 65150 |
| | 150 | 493 | 1162 | 1972 | 2747 | 4684 | 6621 | 9121 | 14686 | 26061 | 57405 |
| | 175 | 416 | 980 | 1663 | 2316 | 3950 | 5583 | 7692 | 12384 | 21976 | 48409 |
| 250 | 0-130 | 628 | 1480 | 2511 | 3498 | 5964 | 8431 | 11614 | 18700 | 33184 | 73095 |
| | 150 | 588 | 1386 | 2352 | 3276 | 5586 | 7896 | 10878 | 17514 | 31080 | 68460 |
| | 200 | 441 | 1040 | 1764 | 2457 | 4190 | 5922 | 8159 | 13136 | 23310 | 51345 |

* Shaded portion is for sizing temperature pilot, solenoid, or temperature-solenoid combination valves only.