

CONVERSION CHART

VELOCITY PRESSURE in inches of water to VELOCITY in feet per minute

Calculating Air Velocity. Fechheimer Pitot airflow stations and traverse probes measure in the same manner and magnitude as the Pitot tube, via separate signals of airstream *total pressure* and *static pressure*, in inches water column (IN w.c.). To obtain *velocity pressure* (the force generated by the velocity of the air moving in a duct), the *static pressure* must be subtracted from the *total pressure*:

$$\text{Velocity Pressure (IN w.c.)} = \text{Total Pressure (IN w.c.)} - \text{Static Pressure (IN w.c.)}$$

Air velocity, expressed in feet per minute, is a function of *velocity pressure*, converted by means of the following formula:

$$\text{Air Velocity (FPM)} = 1096.5 \times \sqrt{\frac{\text{Velocity Pressure (IN w.c.)}}{\text{Density of (Gas)}}}$$

In commercial applications where air is the gas, its density is at 70° Fahrenheit and 29.92 inches of mercury (barometric pressure), and the airflow is not compressed (under 10 IN w.c.), the formula reduces to:

$$\text{Air Velocity (FPM)} = 4005 \times \sqrt{\text{Velocity Pressure (IN w.c.)}}$$

.001"	127	.052"	913	.102"	1279	.152"	1561	.202"	1800	.252"	2011	.302"	2200	.352"	2376	.51"	2860	1.01"	4025	1.51"	4921
.002"	179	.053"	922	.103"	1285	.153"	1567	.203"	1804	.253"	2015	.303"	2204	.353"	2379	.52"	2888	1.02"	4045	1.52"	4938
.003"	219	.054"	931	.104"	1292	.154"	1572	.204"	1809	.254"	2019	.304"	2208	.354"	2383	.53"	2916	1.03"	4064	1.53"	4954
.004"	253	.055"	939	.105"	1298	.155"	1577	.205"	1813	.255"	2023	.305"	2212	.355"	2386	.54"	2943	1.04"	4084	1.54"	4970
.005"	283	.056"	948	.106"	1304	.156"	1582	.206"	1818	.256"	2027	.306"	2215	.356"	2389	.55"	2970	1.05"	4103	1.55"	4986
.006"	310	.057"	956	.107"	1310	.157"	1587	.207"	1822	.257"	2031	.307"	2219	.357"	2393	.56"	2997	1.06"	4123	1.56"	5002
.007"	335	.058"	964	.108"	1316	.158"	1592	.208"	1827	.258"	2035	.308"	2223	.358"	2396	.57"	3024	1.07"	4142	1.57"	5018
.008"	358	.059"	973	.109"	1322	.159"	1597	.209"	1831	.259"	2039	.309"	2226	.359"	2400	.58"	3050	1.08"	4162	1.58"	5034
.009"	380	.060"	981	.110"	1328	.160"	1602	.210"	1835	.260"	2042	.310"	2230	.360"	2403	.59"	3076	1.09"	4181	1.59"	5050
.010"	400	.061"	989	.111"	1334	.161"	1607	.211"	1839	.261"	2046	.311"	2233	.361"	2406	.60"	3102	1.10"	4200	1.60"	5066
.011"	420	.062"	996	.112"	1340	.162"	1612	.212"	1844	.262"	2050	.312"	2236	.362"	2410	.61"	3127	1.11"	4219	1.61"	5082
.012"	439	.063"	1004	.113"	1346	.163"	1617	.213"	1848	.263"	2054	.313"	2239	.363"	2413	.62"	3153	1.12"	4238	1.62"	5098
.013"	457	.064"	1012	.114"	1352	.164"	1622	.214"	1853	.264"	2058	.314"	2242	.364"	2416	.63"	3179	1.13"	4257	1.63"	5114
.014"	474	.065"	1020	.115"	1358	.165"	1627	.215"	1857	.265"	2062	.315"	2245	.365"	2420	.64"	3204	1.14"	4276	1.64"	5129
.015"	491	.066"	1029	.116"	1364	.166"	1632	.216"	1862	.266"	2066	.316"	2248	.366"	2423	.65"	3229	1.15"	4295	1.65"	5144
.016"	507	.067"	1037	.117"	1370	.167"	1637	.217"	1866	.267"	2070	.317"	2251	.367"	2426	.66"	3254	1.16"	4314	1.66"	5160
.017"	522	.068"	1045	.118"	1376	.168"	1642	.218"	1870	.268"	2074	.318"	2254	.368"	2429	.67"	3279	1.17"	4332	1.67"	5175
.018"	537	.069"	1052	.119"	1382	.169"	1646	.219"	1875	.269"	2078	.319"	2257	.369"	2433	.68"	3303	1.18"	4350	1.68"	5191
.019"	552	.070"	1060	.120"	1387	.170"	1651	.220"	1879	.270"	2081	.320"	2260	.370"	2436	.69"	3327	1.19"	4368	1.69"	5206
.020"	566	.071"	1067	.121"	1393	.171"	1656	.221"	1883	.271"	2085	.321"	2264	.371"	2439	.70"	3351	1.20"	4386	1.70"	5222
.021"	580	.072"	1075	.122"	1399	.172"	1661	.222"	1887	.272"	2089	.322"	2268	.372"	2443	.71"	3375	1.21"	4405	1.71"	5237
.022"	594	.073"	1082	.123"	1404	.173"	1666	.223"	1892	.273"	2093	.323"	2272	.373"	2445	.72"	3398	1.22"	4423	1.72"	5253
.023"	607	.074"	1089	.124"	1410	.174"	1670	.224"	1896	.274"	2097	.324"	2276	.374"	2449	.73"	3422	1.23"	4442	1.73"	5268
.024"	620	.075"	1097	.125"	1416	.175"	1675	.225"	1900	.275"	2101	.325"	2280	.375"	2453	.74"	3445	1.24"	4460	1.74"	5283
.025"	633	.076"	1104	.126"	1422	.176"	1680	.226"	1905	.276"	2105	.326"	2284	.376"	2456	.75"	3468	1.25"	4478	1.75"	5298
.026"	645	.077"	1111	.127"	1427	.177"	1685	.227"	1909	.277"	2109	.327"	2289	.377"	2459	.76"	3491	1.26"	4495	1.76"	5313
.027"	658	.078"	1119	.128"	1433	.178"	1690	.228"	1913	.278"	2113	.328"	2293	.378"	2462	.77"	3514	1.27"	4513	1.77"	5328
.028"	670	.079"	1125	.129"	1439	.179"	1695	.229"	1917	.279"	2116	.329"	2297	.379"	2466	.78"	3537	1.28"	4531	1.78"	5343
.029"	682	.080"	1133	.130"	1444	.180"	1699	.230"	1921	.280"	2119	.330"	2301	.380"	2469	.79"	3560	1.29"	4549	1.79"	5359
.030"	694	.081"	1140	.131"	1449	.181"	1704	.231"	1925	.281"	2123	.331"	2304	.381"	2472	.80"	3582	1.30"	4566	1.80"	5374
.031"	705	.082"	1147	.132"	1455	.182"	1709	.232"	1929	.282"	2127	.332"	2308	.382"	2475	.81"	3604	1.31"	4583	1.81"	5388
.032"	716	.083"	1154	.133"	1461	.183"	1713	.233"	1933	.283"	2131	.333"	2311	.383"	2479	.82"	3625	1.32"	4601	1.82"	5403
.033"	727	.084"	1161	.134"	1466	.184"	1718	.234"	1937	.284"	2135	.334"	2315	.384"	2481	.83"	3647	1.33"	4619	1.83"	5418
.034"	738	.085"	1167	.135"	1471	.185"	1723	.235"	1941	.285"	2139	.335"	2318	.385"	2485	.84"	3669	1.34"	4636	1.84"	5433
.035"	749	.086"	1175	.136"	1477	.186"	1727	.236"	1945	.286"	2143	.336"	2322	.386"	2488	.85"	3690	1.35"	4653	1.85"	5447
.036"	759	.087"	1181	.137"	1482	.187"	1732	.237"	1950	.287"	2147	.337"	2325	.387"	2491	.86"	3709	1.36"	4671	1.86"	5462
.037"	770	.088"	1188	.138"	1488	.188"	1737	.238"	1954	.288"	2151	.338"	2329	.388"	2495	.87"	3729	1.37"	4688	1.87"	5477
.038"	780	.089"	1193	.139"	1493	.189"	1741	.239"	1958	.289"	2154	.339"	2332	.389"	2499	.88"	3758	1.38"	4705	1.88"	5491
.039"	791	.090"	1201	.140"	1498	.190"	1746	.240"	1962	.290"	2157	.340"	2335	.390"	2501	.89"	3779	1.39"	4722	1.89"	5506
.040"	801	.091"	1208	.141"	1504	.191"	1750	.241"	1966	.291"	2161	.341"	2338	.391"	2503	.90"	3800	1.40"	4739	1.90"	5521
.041"	811	.092"	1215	.142"	1509	.192"	1755	.242"	1970	.292"	2164	.342"	2342	.392"	2506	.91"	3821	1.41"	4756	1.91"	5535
.042"	821	.093"	1222	.143"	1515	.193"	1759	.243"	1974	.293"	2168	.343"	2345	.393"	2509	.92"	3842	1.42"	4773	1.92"	5550
.043"	831	.094"	1228	.144"	1520	.194"	1764	.244"	1978	.294"	2171	.344"	2349	.394"	2512	.93"	3863	1.43"	4790	1.93"	5564
.044"	840	.095"	1234	.145"	1525	.195"	1768	.245"	1982	.295"	2175	.345"	2352	.395"	2515	.94"	3884	1.44"	4806	1.94"	5579
.045"	849	.096"	1241	.146"	1530	.196"	1773	.246"	1987	.296"	2179	.346"	2356	.396"	2518	.95"	3904	1.45"	4823	1.95"	5593
.046"	859	.097"	1247	.147"	1536	.197"	1777	.247"	1991	.297"	2182	.347"	2360	.397"	2521	.96"	3924	1.46"	4840	1.96"	5608
.047"	868	.098"	1254	.148"	1541	.198"	1782	.248"	1995	.298"	2186	.348"	2363	.398"	2524	.97"	3945	1.47"	4856	1.97"	5623
.048"	877	.099"	1260	.149"	1546	.199"	1787	.249"	1999	.299"	2189	.349"	2366	.399"	2527	.98"	3965	1.48"	4873	1.98"	5637
.049"	887	.100"	1266	.150"	1551	.200"	1791	.250"	2003	.300"	2193	.350"	2369	.400"	2530	.99"	3985	1.49"	4889	1.99"	5651
.050"	896	.101"	1273	.151"	1556	.201"	1795	.251"	2007	.301"	2197	.351"	2372	.400"	2532	1.00"	4005	1.50"	4905	2.00"	5664

Calculating Air Volume. The *station air volume*, expressed cubic feet per minute (CFM), is the product of the *air velocity* through the airflow station and the *station area* in square feet (Ft²).

$$\text{Station Air Volume (CFM)} = \text{Air Velocity (FPM)} \times \text{Station Area (Ft}^2\text{)}$$

Air Monitor's Product Families of Flow Measurement and Pressure Sensors



FAN-E AIRFLOW MEASURING STATION.

Multi-point, self-averaging, Pitot traverse station with integral air straightener-equalizer honeycomb cell. Capable of continuously measuring fan discharges or ducted airflow with an accuracy of two percent or better.

AMCA CERTIFIED in accordance with Standard 610.



VOLU-PROBE/1,2,3,4 AIRFLOW TRAVERSE PROBES.

Multi-point, self-averaging, Pitot Fechheimer airflow traverse probes with integral airflow direction correcting design. Four mounting configurations to fit every application.

AMCA CERTIFIED in accordance with Standard 610.



VOLU-PROBE/FI FAN INLET AIRFLOW PROBES.

Multi-point, self-averaging, Pitot Fechheimer airflow probes with integral airflow direction correcting design. For mounting directly in the inlet cones or bellmouth of centrifugal or vane-axial fans to measure fan capacities within three percent of actual flow.



VOLU-PROBE/VS AIRFLOW PROBE TRAVERSE STATIONS.

Multi-point, self-averaging, Pitot Fechheimer airflow probes factory mounted in a flanged sheet metal casing, with interconnecting tubing. Capable of measuring ducted airflow within two percent accuracy without using an air straightener or incurring significant resistance to airflow.

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S.A.P./1,2,3 and S.O.A.P. STATIC PRESSURE SENSORS.

Available in three separate mounting configurations, the S.A.P. family of static pressure sensors generate a steady, non-pulsating output of room, space or plenum pressure.

The S.O.A.P. was designed to accurately sense outside atmospheric air pressure.



STAT-PROBE STATIC PRESSURE TRAVERSE PROBE.

Multi-point, self-averaging, Fechheimer static pressure traverse probe for accurate sensing of duct or system static pressure in the presence of turbulent or rotational airflows.

