



Fire Pump Flow Test Kit with Tachometer Model H-PK3



Operation:

To perform flow tests on Fire Pumps, Hydrants Hoses, this kit includes a hand-held CDT-2000HD Combination Portable Tachometer combines the best features of both contact and non-contact models to accurately measure RPM, surface speed and length.

Features:

This kit includes

1. Two hand held quick connect pitot tubes with Standard & Notched Blade
2. A thin standard blade is included as a spare.
3. One 4" Dial Dual read 160Psi/2120 GPM Pressure gauge with NIST certification.
4. One 2-1/2" Dial 0-200Psi Pressure gauge with NIST certification.
5. Two 2-1/2" Dial 0-300Psi [CGD250](#) Digital Gauges
6. 2-1/2" Test Cap with Bleeder Valve and Quick connect pin
7. 3/4" GHT x 1/4" F NPT Test Cap
8. Digital tachometer CDT-2000HD with both photo and contact modes
 - Measures speeds from as low as 1.00 rpm up to 99,999 rpm
 - Accuracy of 0.02% with a resolution of 0.01 RPM
 - Includes [DAkKS](#) Traceable calibration Certificate
 - Built-in memory stores maximum, minimum, average and last reading for recall to the display
9. H-N501 Inspector's Hydrant Flow Nozzle
10. H-E45B: 2 1/2" NST Rough Brass 45 Degree Flushing Discharge Elbow
11. Replacement 2-1/2" gaskets, 1/4" F NPT Quick connect coupler with 1/4" NPT Male pin and thread tape included
12. Included is a Protective carrying case with Foam 20.75" x 16.5" x 9.25"

Non-Contact & Contact TACHOMETER

CDT-2000HD

Measuring Range

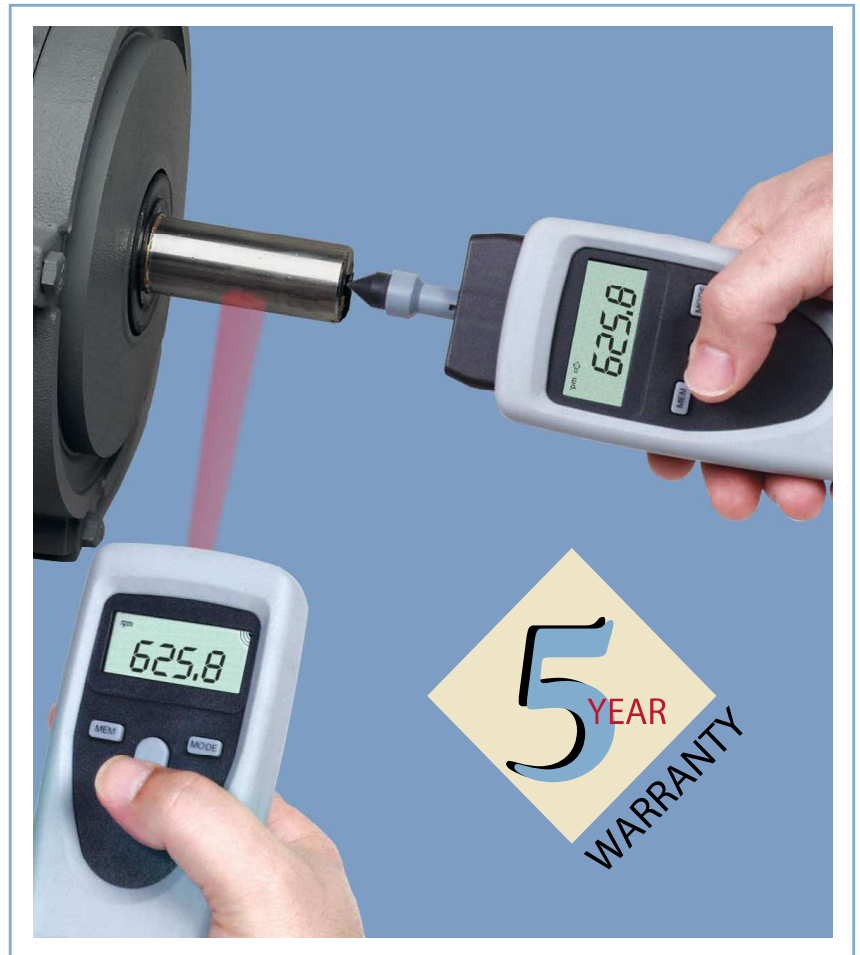
Non-Contact: 1.00 - 99,999 rpm

Contact: 1.00 - 19,999 rpm

The CHECK•LINE® CDT-2000HD Combination Hand-Held Digital Tachometer combines the best features of both contact and non-contact models to accurately measure RPM, surface speed and length.

When using the non-contact mode, rotational speed (RPM) is measured using a visible beam of light. The CDT-2000HD can be up to 24 inches away from the small piece of reflective tape that is affixed to the rotating element. In the contact operating mode, the speed is sensed by directly contacting the rotating device using the cone tip or surface speed wheel supplied with the instrument.

The CDT-2000HD's rugged construction, portability and outstanding features make it an ideal choice for maintenance personnel, machine operators or others in a wide variety of machinery and material handling applications.



FEATURES

- ▲ Measures speeds from 1.00 up to 99,999 rpm
- ▲ Accuracy of 0.02% with a resolution up to 0.01 rpm
- ▲ Built-in memory stores maximum, minimum, average and last reading for recall to the display
- ▲ Take accurate measurements from up to 24 inches away from rotating equipment
- ▲ Includes traceable calibration certificate
- ▲ **NEW** - **Molded Rubber Shell** provides additional physical and environmental protection
- ▲ **NEW** - Now includes larger 6 inch circumference Surface Speed Wheel standard
- ▲ **NEW** - Can be set for use with 2 optional-sized surface speed wheels (12 in. or 10 cm circumference)

Specifications

Resolution	.01 from 0 – 100 .1 from 100 – 1,000 1 from 1000 – 99,999	Sensing Distance	Up to 24 inches (60 cm)
Accuracy	± 0.02% of reading or ±1 digit	Display Update Time	0.5 seconds or one measuring period
Display	5-Digit LCD, 10mm high	Auto Power Off	After 30 seconds of non-use (minimum, maximum average, and last reading retained in memory)
Decimal Point	Automatic	Battery Life	40 hours continuous use (approx.) with alkaline batteries
Memory System	Maximum, minimum, average and last reading (retained in memory for the life of batteries)	Battery Type	2 AA (1.5 V) or rechargeable
Measurement System		Weight	6 ounces (170 grams)
<i>Non-Contact</i>	Visible LED light beam	Housing Material	ABS Plastic
<i>Contact</i>	Contact adapter	Operating Temperature	32 to 122° F (0 to 50° C)
Engineering units		Storage Temperature	– 4 to 158° F (–20 to 70° C)
<i>RPM</i>	RPM		
<i>Surface Speed</i>	Feet/min, inches/min and meters/min		
<i>Length</i>	Feet, inches, meters		

Measuring Ranges – rpm

Optical	1 – 99,999 rpm
Mechanical	1 – 99,999 rpm

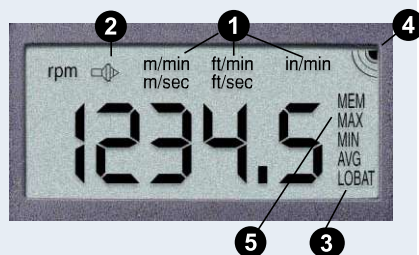
Measuring Ranges – speed

Wheel Size	6"	12"	0.1 m
<i>m/min</i>	0.10–1524	0.40–609.6	0.10–1999
<i>ft/min</i>	0.40–5000	0.40–2000	0.40–6550
<i>in/min</i>	4.0–60.00	4.00–24.000	4.00–78.700
<i>m/sec</i>	0.10–25.40	0.10–10.16	0.10–33.30
<i>ft/sec</i>	0.10–83.33	0.10–33.33	0.10–109

Measuring Ranges – length

0 – 99,999 m, / 0 – 99,999 ft / 0 – 99,999 in

- Units of Measure Indicators** show the user-selected units of measure.
- Contact Indicator** shows if contact or non-contact operation is selected.
- Low Battery Indicator** alerts the operator if the batteries are low.
- On-Target Indicator** confirms that the measurements are reliable.
- Memory Indicators** are illuminated when the maximum, minimum, average and last readings are recalled to the display for viewing.



The CDT-2000HD is supplied as a complete kit including: Gauge, contact adapter, cone tip adapter, 6" circumference universal surface speed wheel, reflective tape, NIST-traceable calibration certificate, operating instructions and foam-fitted, hard-plastic carrying case.

A Non-Contact Model, the CDT-1000HD is also available.

Hydrant Flow Pitot Tube Kit

The hand held Pitot tube is one of the most efficient and accurate methods of measuring water discharge from hose nozzles, hydrants or other type open orifices.

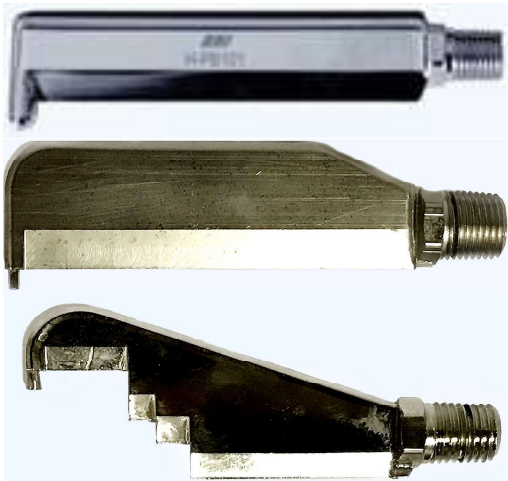
Kit comes complete with Quick Disconnect Pitot tube, One Gauge with Rubber cover for protection in a case. Pitot Tube is machined from a solid Brass Hex stock & is chrome Plated for corrosive resistance. It has a solid grip even with one hand. The gauge is mounted with a quick connect fitting that can be easily connected to the male Pin on the Pitot Tube. It can be easily rotated in any direction for comfortable reading.

The Pressure Gauges are Liquid Filled with stainless steel case +/- 1.6% full scale accuracy in ranges 0-60Psi, 0-100Psi, 0-160Psi, 0-200Psi & 0-300Psi. The Gauges have a rubber boot for protection. Digital Gauges have +/- 1% full scale accuracy. Also available are 4" Dial Dual Read PSI/GPM gauges in 60Psi/1300GPM, 100Psi/1680GPM and 160Psi/2120GPM for measuring pressure as well as gallons per minute in 2½" Hydrants with 0.9 coefficient



Pitot Blades

Three styles of Pitot Blades are available. chrome-plated standard metal Blade, thin Metal Blade and a thin Notched Blade all with integral stainless steel tube. Thin Blades have reduced turbulence of water and splashing while testing. The notched metal blade with an integral SS tube allows for easy center placement of the orifice on the hydrant nozzle.



H-PB101
Standard Metal Blade

H-PB111
Thin SS Metal Blade

H-PB108
Notched Metal Blade



Hydrant Flow Kit (standard Blade)

H-PT300 Pitot Kit with 300 Psi Gauge
H-PT200 Pitot Kit with 200 Psi Gauge
H-PT160 Pitot Kit with 160 Psi Gauge
H-PT100 Pitot Kit with 100 Psi Gauge
H-PT060 Pitot Kit with 060 Psi Gauge

Hydrant Flow Kit (Notched Blade)

H-PT300N Pitot Kit with 300 Psi Gauge
H-PT200N Pitot Kit with 200 Psi Gauge
H-PT160N Pitot Kit with 160 Psi Gauge
H-PT100N Pitot Kit with 100 Psi Gauge
H-PT060N Pitot Kit with 060 Psi Gauge

Hydrant Flow Kit (GPM Gauge Std. Blade)

H-PT160D Pitot Kit with 60 Psi/2120Gpm
H-PT100D Pitot Kit with 100 Psi/1680Gpm
H-PT100D Pitot Kit with 100 Psi/1680Gpm

Spare Replacement Pitot Blades

H-PB108 Std. Metal Blade
H-PB111 Thin Metal Blade
H-PB112 Notched Metal Blade



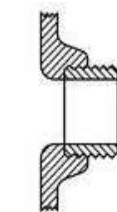
Discharge Flow Rate

The rate of discharge from a flowing hydrant relative to the Pitot pressure reading is dependent on three factors:

- the Pitot pressure reading
- the interior diameter of the hydrant nozzle, and
- the “coefficient” of the hydrant nozzle

The hydrant nozzle interior diameter should be carefully measured. Most hydrants have a nozzle interior diameter of 2½".

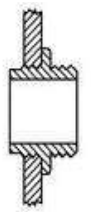
The hydrant nozzle coefficient is a factor that allows for the hydraulic entrance losses as the water enters the nozzle from the hydrant barrel. Most new hydrants have a rounded shoulder at the nozzle. Coefficient of this type of nozzle has been determined to be 0.9



Outlet smooth
and rounded
(coef. 0.90)



Outlet square
and sharp
(coef. 0.80)



Outlet square and
projecting into barrel
(coef. 0.70)

Source: NFPA 291





FLOW TEST CHART CALCULATOR

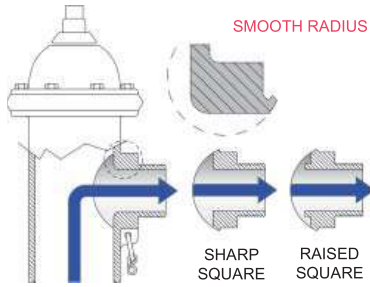


Chart Values have been rounded to the nearest 5 GPM.

PRESSURE		FLOW IN GPM BY PIPE SIZE							
PSI	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"	4-1/2"	5"	6"
1	60	110	170	245	330	435	550	680	980
2	85	150	240	345	470	615	775	960	1380
3	105	185	290	420	570	740	940	1160	1670
4	125	220	340	490	665	870	1100	1360	1960
5	135	240	380	545	745	960	1220	1520	2190
6	150	260	410	590	805	1050	1340	1640	2360
7	160	280	440	635	860	1140	1440	1760	2535
8	175	310	480	690	940	1220	1540	1920	2765
9	180	320	500	720	980	1290	1640	2000	2880
10	190	340	530	765	1040	1360	1730	2120	3050
11	200	355	555	800	1090	1420	1800	2220	3195
12	210	370	580	835	1135	1490	1890	2320	3340
13	220	390	605	870	1185	1550	1960	2420	3485
14	230	405	630	910	1235	1610	2040	2520	3625
15	235	415	650	935	1275	1665	2105	2600	3745
16	240	430	670	965	1315	1720	2180	2680	3860
17	250	440	690	995	1350	1770	2235	2760	3975
18	255	455	710	1020	1390	1830	2310	2840	4090
19	265	465	730	1050	1430	1870	2365	2920	4205
20	270	480	750	1080	1470	1920	2430	3000	4320
22	285	505	790	1140	1550	2020	2550	3160	4550
24	295	525	820	1180	1605	2110	2660	3280	4720
26	310	550	860	1240	1685	2190	2770	3440	4950
28	320	570	890	1280	1745	2280	2880	3560	5125
30	330	590	920	1325	1805	2350	2980	3680	5295
32	340	610	950	1370	1860	2430	3080	3800	5470
34	355	625	980	1410	1920	2510	3170	3920	5640
36	365	645	1010	1455	1980	2580	3260	4040	5815
38	375	665	1040	1500	2040	2650	3350	4160	5990
40	380	680	1060	1525	2075	2720	3440	4240	6105
42	395	700	1090	1570	2135	2780	3520	4360	6275
44	400	710	1110	1600	2175	2850	3610	4440	6390
46	410	730	1140	1640	2235	2920	3690	4560	6565
48	420	740	1160	1670	2275	2980	3770	4640	6680
50	430	760	1190	1715	2330	3040	3860	4760	6850
52	435	775	1210	1740	2370	3100	3940	4840	6965
54	445	785	1230	1770	2410	3160	4010	4920	7080
56	450	800	1250	1800	2500	3220	4080	5000	7200
58	460	820	1280	1845	2510	3280	4160	5120	7370

FLOW TEST CHART CALCULATOR

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PRESSURE		FLOW IN GPM BY PIPE SIZE							
PSI	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"	4-1/2"	5"	6"
60	470	830	1300	1870	2550	3330	4230	5200	7484
62	480	850	1320	1905	2595	3380	4290	5295	7625
64	485	860	1340	1940	2635	3435	4360	5380	7750
66	490	875	1360	1970	2680	3490	4425	5460	7870
68	500	890	1385	1995	2720	3540	4490	5545	7985
70	505	900	1405	2025	2755	3595	4560	5630	8100
72	515	910	1425	2055	2795	3645	4620	5705	8220
74	520	925	1445	2080	2835	3695	4685	5785	8330
76	530	940	1465	2110	2875	3745	4750	5860	8440
78	535	950	1480	2140	2910	3795	4810	5940	8555
80	540	960	1500	2165	2950	3840	4870	6015	8660
82	550	975	1520	2190	2985	3890	4930	6090	8770
84	555	985	1540	2220	3020	3935	4990	6165	8875
86	560	1000	1555	2245	3055	3985	5050	6240	8980
88	570	1010	1575	2270	3090	4030	5110	6310	9085
90	575	1020	1590	2300	3125	4075	5170	6380	9190
92	580	1030	1610	2320	3160	4120	5225	6450	9290
94	590	1045	1625	2345	3195	4165	5280	6520	9390
96	595	1055	1645	2370	3230	4210	5340	6590	9490
98	600	1065	1660	2400	3260	4250	5390	6660	9590
100	605	1075	1680	2420	3295	4295	54 50	6725	9685
102	610	1090	1695	2445	3330	4340	5500	6790	9780
104	620	1100	1710	2470	3360	4380	5555	6860	9875
106	625	1110	1730	2495	3395	4425	5610	6925	9970
108	630	1120	1745	2515	3425	4465	5660	6990	10065
110	635	1130	1760	2540	3455	4505	5715	7055	10160
112	640	1140	1775	2560	3490	4545	5765	7120	10250
114	645	1150	1790	2585	3520	4585	5815	7180	10340
116	650	1160	1810	2610	3550	4625	5870	7240	10430
118	660	1170	1825	2630	3580	4665	5920	7305	10520
120	665	1180	1840	2650	3610	4705	5970	7370	10610
122	670	1190	1855	2675	3640	4745	6020	7430	10695
124	675	1200	1870	2695	3670	4785	6055	7490	10785
126	680	1210	1885	2720	3700	4820	6115	7550	10870
128	685	1220	1900	2740	3730	4860	6160	7610	10955
130	690	1230	1915	2760	3760	4900	6210	7670	11040
132	695	1235	1930	2780	3785	4935	6260	7725	11125
134	700	1245	1945	2805	3815	4970	6305	7785	11210
136	705	1255	1955	2825	3845	5010	6350	7840	11295
138	710	1265	1970	2845	3870	5045	6400	7900	11375
140	715	1270	1985	2865	3900	5085	6445	7960	11460
142	720	1280	2000	2885	3930	5120	6490	8015	11540
144	725	1290	2015	2905	3955	5155	6540	8070	11620
146	730	1300	2030	2925	3980	5190	6580	8125	11700
148	735	1310	2040	2945	4010	5225	6630	8180	11780
150	740	1320	2055	2965	4035	5260	6670	8235	11860
152	745	1330	2070	2985	4065	5295	6715	8290	11940
154	750	1335	2080	3005	4090	5330	6760	8350	12020
156	755	1345	2095	3025	4115	5365	6805	8400	12095
158	760	1350	2110	3045	4140	5400	6850	8450	12170
160	765	1360	2120	3060	4170	5435	6890	8510	12250