Straight Bore Discharge Data

FK-25 Nozzle PSI In lbs./ Sq. In.	*FK-25* Nozzle Tip Size in Inches						
	1"	1-1/4"	1-1/2"	1-3/4"	2"	2-1/4"	2-1/2"
	Gallons Per Minute						
10		151	220	296	396	491	608
12		165	241	323	443	536	662
14		178	260	348	463	578	711
16		190	278	372	493	616	756
18		202	295	394	520	652	797
20		212	310	414	545	678	835
22		223	324	433	571	710	871
24		232	337	452	596	742	906
26		241	350	469	621	772	938
28		250	361	486	644	801	969
30		258	373	502	666	828	998
32		266	384	519	686	855	1031
34		273	396	536	706	882	1062
36		279	408	552	725	907	1093
38		286	419	568	743	932	1123
40		292	429	584	760	956	1152
42		299	440	599	780	975	1171
44		306	450	613	800	998	1188
46		313	460	627	819	1020	1205
48		320	470	640	837	1042	1220
50		326	479	653	856	1058	1234
52		332	487	666	872	1077	1254
54		338	494	678	889	1098	1272
56		344	501	689	905	1118	1290
58		350	508	701	921	1138	1308
60	209	355	514	712	935	1155	1325
62	212	362	524	723	949	1179	1343
64	216	368	532	735	963	1198	1361
66	219	374	541	746	976	1216	1378
68	222	380	549	757	990	1235	1396
70	225	387	558	768	1003	1258	1412
72	228	390	563	778	1017	1271	1430
74	231	394	567	788	1031	1288	1447
76	235	398	572	799	1045	1306	1465
78	238	401	576	810	1058	1323	1481
80	240	405	580	819	1073	1335	1498
82	243	410	587	826	1084	1350	1509
84	246	415	594	833	1097	1367	1519
86	249	419	601	839	1110	1383	1529
88	252	424	608	845	1123	1399	1539
90	254	429	616	851	1133	1413	1548
92	257	434	624	859	1145	1427	1565
94	260	439	631	868	1157	1443	1582
96	263	444	637	877	1169	1458	1599
98	266	448	644	887	1182	1473	1615
100	268	453	652	894	1192	1486	1630
105	275	463	666	916	1225	1519	1663
110	281	472	679	938	1257	1550	1696
115	289	482	694	955	1277	1591	1706
120	296	492	708	972	1297	1630	1714
125	303	500	725	992	1325	1647	1749
130	310	507	742	1012	1353	1664	1784
135	315	519	754	1030	1370	1696	1818
140	320	530	767	1049	1387	1727	1851

BASIC PRINCIPLE OF OPERATION

The Apparatus Flow Test Kit (FK-25) uses the pitot method to measure water flow. This is where flow is the direct function of the stream velocity (pressure) through a nozzle tip of known diameter.

One way to read nozzle tip pressure, accurately, is to place the pitot tube tip securely in the center of the nozzle tip a distance equal to one-half the nozzle tip diameter in the center of the tip diameter and parallel to the direction of the water flow. The pitot simply measures the static water pressure at the point of pick up and is read in PSI on the pressure gauge. The enclosed Akron Brass Straight Bore Discharge Data chart converts the PSI reading to the actual flow in GPM.

HOW TO USE: Flush the system, totally, prior to testing. Attach the Apparatus Flow Test Kit (FK-25) to a deluge set that has the proper hose layouts connected to it. Attach the appropriate tip size you wish to start testing with. Bring your apparatus up to the proper engine RPM as per the UL Test Plate mounted on the pump panel; and the corrected Test Gauge reading as figured per the instructions on the other side of this table. Bleed all entrapped air from pitot blade and gauge using the bleeder valve. The pitot reading in PSI and its correlation to the corresponding "Straight Bore Discharge Data" chart will give you the flow in gallons per minute of your apparatus at that RPM. After use, open bleeder valve to drain pitot tube and gauge, this is especially necessary in freezing weather.

If by chance the pitot turns while testing, or is removed from the Apparatus Flow Test Kit for any reason, REALIGNMENT is required. To realign, loosen the set screw that retains the pitot and install the 2" tip. Center the pitot tip in the middle of the tip bore and adjust the tip of the pitot 1" (half the diameter of the tip size) from the end of the tip.

The gauge has an accuracy of plus or minus 1%. If it is dropped or abused in any way it will need to be replaced. Recalibration of a liquid filled gauge can only be done by the original manufacturer.

RECOMMENDATIONS: (1) Always follow the most current NFPA 1911 Standard for "Service Tests of Pumps on Fire Department Apparatus" when testing; (2) Direct flow away from any possible hazards, preferably to an open area; (3) Flush the device to be tested prior to attachment of the flow test kit; (4) Check all connections prior to flowing water; (5) Never interchange nozzle tips while the flow test kit is in operation; (6) Water flow must be straightened for a minimum of three feet ahead of the flow test kit; (7) All reducers and/or adapters connected to the flow test kit must have a minimum of a 2-1/2" waterway; (8) Nozzle tips should be screwed on, hand tight, so the gasket is not expanded into the waterway. There is no need for spanner tightening.

MAINTENANCE and INSPECTION: (1) Inspect the internal surface of the nozzle tips before and after each use for any nicks or gouges, this may effect the readings. All nozzle tips should be smooth bore; (2) Inspect the pitot waterway to ensure that no obstructions are present; (3) Lubricate all gaskets with a good general purpose O-Ring lubricant; (4) Check pitot gauge against a calibrated master gauge, frequently; (5) Check distance from pitot blade inlet to the nozzle tip, regardless which nozzle tip is installed, the distance must be 1/2 the diameter of the nozzle tip. Note: Distance from pitot blade to nozzle tip may be due to gasket wear and replacement of the nozzle tip gasket may be required; (6) Check pitot blade to make certain it is in the center of the waterway, as this may effect the reading; (7) In the event the pitot blade becomes damaged, a new blade can be ordered from your local distributor.

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