

ENGINEERING DATA

HYDRA-TAP™ | HYDRAULICS & ENGINEERING INFORMATION

Coefficients, K-factors, and rated flow ranges for Hydra-Tap™ flow testing devices. All laboratory instrumentation used in the creation of this data is ISO 17025 traceable. Chart accuracies: Legacy Riptide™ ±2%, Riptide ALX™ ±1.75%, Pitotless ALX™ ±1.25%, Riptide PRV™ ±3%.

LEGACY RIPTIDE™

CONFIGURATION	D (in)	AVERAGE C	PSI RANGE	FLOW RANGE (GPM)
1.125" Reduced Orifice Insert	1.125"	0.6629	10 – 145	79.2 – 301.4
1.75" Reduced Orifice Insert	1.750"	0.6990	16 – 136	255.5 – 745.0
2.50" (no insert)	2.493"	0.6659	16 – 115	494.0 – 1324.4
LDH 4" + 3.25" Reduced Orifice Insert	3.250"	0.8051	11 – 69	841.7 – 2108.0
LDH 4" (no insert)	4.000"	0.7279	11 – 71	1152.6 – 2928.2

RIPTIDE ALX™

CONFIGURATION	D (in)	AVERAGE C	PSI RANGE	FLOW RANGE (GPM)
1.125" Reduced Orifice Insert	1.125"	0.8218	2 – 137	43.9 – 363.3
1.75" Reduced Orifice Insert	1.750"	0.8249	3 – 99	130.6 – 750.1
2.50" (no insert)	2.493"	0.8020	11.3 – 47	500.0 – 1019.7
LDH 4" (no insert)	4.000"	0.8531	5 – 44	910.8 – 2701.7

RIPTIDE PITOTLESS ALX™

CONFIGURATION	D (in)	AVERAGE C	PSI RANGE	FLOW RANGE (GPM)
1.125" Pitotless Waterway	1.125"	1.0345	3 – 68	67.7 – 322.2
1.625" Pitotless Waterway	1.625"	1.1959	6 – 88	230.8 – 884.0
1.875" Pitotless Waterway	1.875"	1.3719	10 – 69	455.1 – 1195.5

$Q = 29.84 \times C \times D^2 \times \sqrt{(P)}$ applies to the three device families above.

RIPTIDE PRV™

VENTURI	AVERAGE K	PSI RANGE	FLOW RANGE (GPM)
1.25"	47.07	2 – 47	66.6 – 322.7
1.75"	103.29	5.86 – 94	250.0 – 1001.4
2"	153.41	10 – 80	485.1 – 1372.1

$Q = K \times \sqrt{(P)}$ applies to Riptide PRV™. Rated inlet pressure: 250 PSI.

USING SOFTWARE

If your software uses the Theoretical Discharge Formula found in NFPA 291, 4.7.3, the coefficients above can be used to produce flow rates that will match the factory flow charts. Multi-stream operation: readings should be taken at each stream with each independent correlating GPM added together to determine the total volume flowing.

HAND-HELD PITOT AT A HYDRANT OUTLET

OUTLET TYPE	COEFFICIENT
Outlet smooth and rounded	0.9
Outlet square and sharp	0.8
Outlet square and projecting into barrel	0.7
If a stream straightener is used	0.95

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CLASSIFYING AND MARKING OF HYDRANTS

RATED CAPACITY AT 20 PSI	CLASS	MARKING COLOR (TOPS & NOZZLES)
≥ 1500 GPM	AA	Light Blue
1000 – 1499 GPM	A	Green
500 – 999 GPM	B	Orange
≤ 499 GPM	C	Red

Source: NFPA 291, Chapter 5 (2019) — NFPA hydrant classifications and color markings for various rated capacities.