Model 20135 Kennison Nozzle

Metering Flow... Naturally!

Specification Data

- Line Sizes 6" to 36"
- Low Head Loss
- High Accuracy ± 2%
- For Measuring Flows in Partially Filled Pipes
- Nonclogging Design

Description

The Kennison Nozzle is a device for measuring flow through partially filled pipes. The nozzle measures low flow, wide flow ranges, and liquids containing suspended solids and debris. Because of its high accuracy, nonclogging design, and excellent head-versus-flow characteristics, the Kennison Nozzle is well suited for the measurement of raw sewage, raw and digested sludge, final effluent, and trade wastes.

The unobstructed flow path with its self-scouring action prevents clogging by debris.

The velocity reducing chamber is not required, thus deposition of solids is avoided. The outlet area is generous -- a nozzle with a 16" inlet will pass a 9" sphere.

Its zero-check tap permits checking the adjustment of totalizing or recording instrument without disrupting the flow through the nozzle. The short length of the Kennison Open Flow Nozzle reduces construction costs by decreasing the size of masonry vaults and eliminating the need for support of the free end.

Engineering Specifications

Construction

The Kennison Nozzle is constructed of high tensile cast iron. The piezometer vent opening is brushed in brass and is regularly equipped with a bronze-mounted manual vent cleaner. Each nozzle is furnished with leveling lugs for correct setting of the nozzle. Vent cleaner and piezometer tap can be on right or left side of nozzle, as specified by the customer. Special laboratory calibration will ensure accuracy within ±1% of the actual flow from maximum to 1/20 of maximum.

The overall accuracy and metering range depend on the type of secondary instrument used.

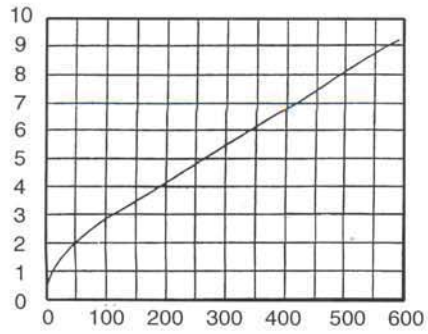


Fig.1 - Typical rating curve - 10" Kennison (Note Linear Relationship from 1/10 to Maximum Flow).

Head Loss

Loss of head for the Kennison Nozzle is slightly more than one pipe diameter when flowing full.

Accuracy and Range

Uncalibrated Kennison Nozzles in sizes 8" and larger will measure the flow within the following limits based on actual flow:

±2% from max. to 1/10 max.
±3% from 1/10 max. to 1/15 max.
±5% from 1/15 max. to 1/20 max.

Half Section Nozzle

A six-inch, half section Kennison Nozzle is supplied with a dividing plate that extends 5-1/2' into the upstream pipe to divert the flow properly into the inlet of the nozzle. The six-inch pipe

flange at the inlet matches the 125# American Standard drilling. It has a throughway with flat invert and no depressions or summits to collect sediment.

Designed to measure flow under low head conditions with the line partly filled, this type of nozzle may be used in place of the full size Kennison Nozzle. It accommodates flow rates from a maximum of 130,000 gpd down to a minimum of 5,000 gpd. It is ideal for measurement of low flows in water and sewage works or small discharges of industrial waste.

Its accuracy, construction, installation, recording instruments, and accessories are the same as the full size Kennison Nozzle.

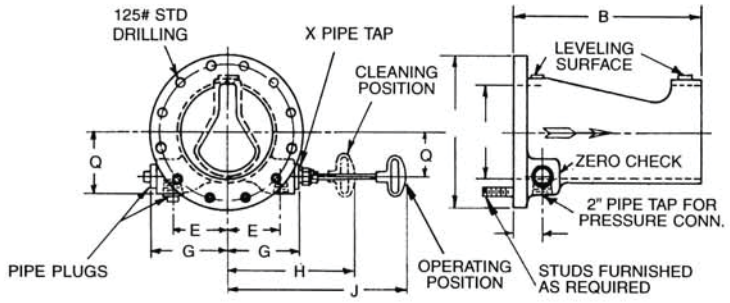
Capabilities

Comprehensive calibration data from recognized hy-draulic laboratories form the basis of design calculations for particular flow conditions. A typical rating curve (Figure 1) illustrates the relatively large changes in head (float movement) for equal flow rate increments. This favorable and fundamental characteristic is the basis of the successful application of the Kennison Nozzle to a wide range of difficult metering problems.

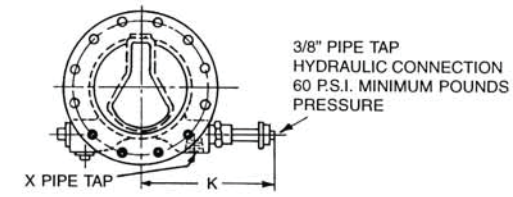
Inlet Diameter Inches	Maximum Capacity Gallons/ Minute	Gallons/ Day	Model Number
6	200	290,000	20135-06
8	320	450,000	20135-08
10	560	800,000	20135-10
12	850	1,200,000	20135-12
16	1,900	2,700,000	20135-16
20	3,100	4,500,000	20135-20
24	5,200	7,500,000	20135-24
30	8,500	12,000,000	20135-30
36	14,000	20,000,000	20135-36

MODEL	A	B	C	D	E	F	G	H	J	K	Q	X	WGT
20135-06	6	12	2.25	2 5/8	4 5/16	11	6 5/16	12 3/16	17	13 3/8	4 3/4	2	135
20135-08	8	16	2.40	3 5/8	4 3/8	13 1/2	6 9/16	12 7/16	17 3/4	15 3/4	5 3/4	2	155
20135-10	10	20	3.00	4 1/2	5 5/8	16	7 3/4	13 5/8	19	16 7/8	6 3/8	2	240
20135-12	12	24	3.60	5 5/8	6	19	8 1/8	14	19 3/4	17 1/4	7 5/8	2	355
20135-16	16	32	4.80	7 5/8	6 1/4	23 1/2	8 3/8	14 1/4	20	17 5/8	9 5/8	2	600
20135-20	20	40	6.00	9 5/8	6 7/8	27 1/2	9	14 7/8	20 1/2	18 1/8	11 5/8	2	910
20135-24	24	48	7.20	11 5/8	7 5/16	32	9 7/16	15 5/16	21	18 1/2	13 3/4	2	1375
20135-30	30	60	9.00	14 5/8	8 1/8	38 3/4	10 1/4	16 1/8	21 1/2	19 3/8	16 3/4	2	2100
20135-36	36	72	10.80	17 5/8	8 13/16	46	10 15/16	16 13/16	22 1/2	20 1/8	17 3/16	2	3000

Fig. 2 - Dimensions Full Section Kennison Nozzle



MANUAL VENT CLEANER



HYDRAULIC VENT CLEANER

Assembled left hand or right hand (Right Hand shown)

BIF, 1405 Home Avenue, Akron, Ohio 44310 330-564-0941 www.bifwater.com info@bifwater.com