



# Schneider, Flow [Vortex]

Metering Technology	Clean liquid	Dirty liquid	Corrosive liquid	Low conductivity < 5 µS/cm	High (> 150°C) Temperature	Low (< -40°C) Temperature	Low velocity	High viscosity	Abrasive slurries	Fibrous slurries	Clean Gas	Dirty Gas	Steam	Semi-filled pipe
Coriolis	Good	Good	Limited	Good	Limited	Good	Good	Good	Limited	Good	Good	Limited	No	Limited
Electro Magnetic	Good	Good	Good	No	Limited	Limited	Good	Good	Good	Good	No	No	No	Limited
Vortex	Good	Limited	Limited	Good	Good	Limited	No	No	No	No	Good	Limited	Good	No
Integral Flow (dP)	Good	Limited	Limited	Good	Good	Limited	No	No	No	No	Good	Limited	Limited	No
Orifice Plate (dP)	Good	Limited	Limited	Good	Good	Limited	No	No	No	No	Good	Limited	Good	No
Averaging Pitot tube (dP)	Good	Limited	Limited	Good	Good	Limited	No	No	No	No	Good	Limited	Good	No
Venturi (dP)	Good	Good	Limited	Good	Good	Limited	No	No	Limited	Limited	Good	Good	Good	No
V-Cone (dP)	Good	Good	Limited	Good	Good	Limited	No	No	Limited	Limited	Good	Good	Good	No
Wedge (dP)	Good	Good	Limited	Good	Good	Limited	No	No	Good	Good	Good	Good	Good	No
Flow Nozzles (dP)	Good	Limited	Limited	Good	Good	Limited	No	No	No	No	Good	Good	Good	No
Thermal Mass	Good	Limited	Limited	Good	Limited	No	Good	Limited	Limited	Limited	Good	Limited	Good	No
Positive Displacement	Good	No	Limited	Good	Limited	Limited	Good	Limited	No	No	Good	Limited	No	No
Turbine	Good	No	Limited	Good	Limited	Limited	No	No	No	No	Good	Limited	Good	No
Ultrasonic (transit time)	Good	Limited	Limited	Good	No	Limited	Limited	Limited	No	No	Good	Limited	No	No
Ultrasonic (doppler)	No	Good	Limited	Good	No	Limited	Limited	Limited	Limited	Limited	No	Limited	No	No
Ultrasonic (multibeam)	Good	Limited	Limited	Good	No	Limited	Limited	Limited	No	No	Good	Good	Limited	No
Variable Area	Good	No	Limited	Good	Limited	No	No	No	No	No	Good	No	No	No

# SCHNEIDER VORTEX

## Key Value

### True Volumetric Flow Measurement

### Multi-Variable Sensor

Provides Mass-flow Measurement

### Wide Applicability

From Liquid Gas to Superheated Steam

### Wide Range of Flow Measurement

40:1 Liquids Turn Down

20:1 Gas/Steam Turn Down

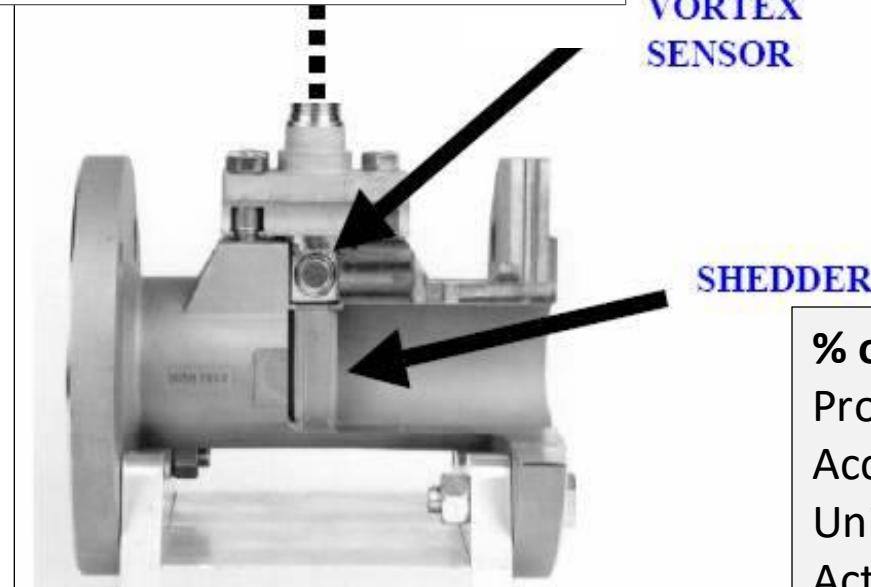
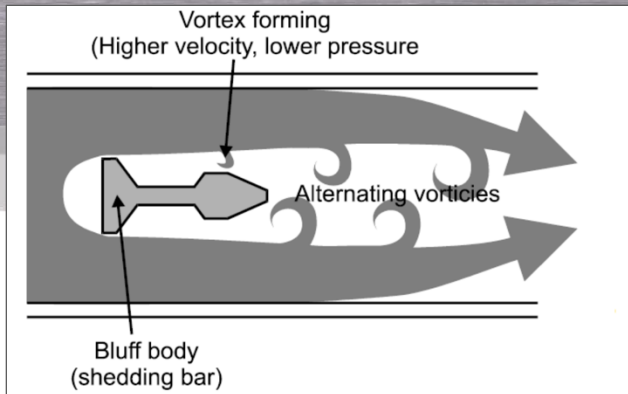
Using Direct Sense™ Technology

### Less Fugitive Emissions

Few Joints versus MV Transmitter

### Detects Transition from Liquid to Gas

Identifies Stuck Dump Valve



### Accuracy (Volumetric Flow Rate)

±0.5% of reading for liquids

±1.0% of reading for gases and steam

### Flexible Communication Options

Modbus or HART

### ½ the Permanent Pressure Loss

Compared to Orifice Plate

Higher Flowrate!!

### % of Rate Accuracy, Not % of Span

Provides Better Application Accuracy

Accuracy does NOT change w Flow Rate

Unique Shedder Design

Active Tuning™ = Better Stability

### Low Cost of Ownership

Economically Priced

Easy Installation

Excellent Durability and Reliability

No Moving Parts = Low Maintenance Cost

### No Moving Parts

Shedder Bar is Fixed

Lower Maintenance



# SCHNEIDER VORTEX

## Key Applications



### Liquids

Water Transfer  
Water Flood  
Oil Allocation  
Well Testing  
GPU Measurement  
Truck Loading/Unloading



### Gas

Allocation  
Fuel Gas  
Gas Lift  
Flare Gas





# SCHNEIDER VORTEX

## Gas Flowrates & Capacities



Natural Gas Flow Rates and Capacities

GAS	PRESSURE	DENSITY	3/4 INCH LRV - URL		1 INCH LRV - URL		1 1/2 INCH LRV - URL		2 INCH LRV - URL	
	PSIG	LBS/FT³	ACFD (VORTEX)	SCFD (RTU)	ACFD (VORTEX)	SCFD (RTU)	ACFD (VORTEX)	SCFD (RTU)	ACFD (VORTEX)	SCFD (RTU)
	75	0.282	2,462 - 49,458	15,378 - 371,260	4,119 - 147,456	25,720 - 920,725	10,119 - 479,473	63,187 - 2,993,886	16,847 - 799,542	105,367 - 4,992,396
	100	0.361	1,810 - 59,548	17,411 - 475,914	3,638 - 147,456	29,120 - 1,180,269	8,937 - 423,856	71,541 - 3,389,672	14,904 - 706,180	119,297 - 5,652,420
	150	0.521	1,810 - 59,548	20,916 - 686,805	3,028 - 143,492	34,982 - 1,657,292	7,440 - 353,522	85,942 - 4,072,021	12,406 - 587,846	143,312 - 6,790,266
	250	0.846	1,421 - 59,548	26,648 - 1,114,822	2,337 - 112,626	44,569 - 2,111,742	5,839 - 276,694	109,494 - 5,187,951	9,738 - 461,400	182,587 - 8,651,125
	350	0.846	1,204 - 57,089	31,434 - 1,489,373	2,015 - 95,480	52,572 - 2,490,944	4,950 - 234,571	129,157 - 6,119,594	8,255 - 391,156	215,375 - 10,204,678
	500	1.685	1,006 - 47,707	62,911 - 2,980,774	1,648 - 79,790	61,964 - 2,447,898	4,137 - 196,023	154,555 - 7,322,979	6,898 - 326,878	257,728 - 12,211,373
	750	2.563	816 - 3,865	46,388 - 2,197,934	1,365 - 64,700	77,548 - 3,675,997	3,354 - 158,950	190,603 - 9,030,958	5,594 - 265,057	317,839 - 15,059,499
	1,000	3.476	701 - 33,217	54,023 - 2,559,692	1,172 - 55,556	90,353 - 4,281,130	2,880 - 136,486	221,975 - 10,517,364	4,803 - 277,597	370,153 - 17,538,145
	1,200	4.220	635 - 30,118	59,583 - 2,823,134	1,063 - 50,371	99,652 - 4,721,630	2,611 - 123,750	244,820 - 11,599,802	4,355 - 206,358	409,248 - 19,343,155

NOTE - VALUES SHOWN ARE FOR REFERENCE ONLY AND SUBJECT TO CONDITIONS SPECIFIED. CONSULT THE FACTORY FOR SPECIFIC APPLICATION DETAIL.

1. SCFD flow values may be interpolated for applications at 60° F.

Foxboro Vortex Flare Gas Sizing Chart

GAS	PRESSURE	DENSITY	1 INCH LRV - URV ¹		2 INCH LRV - URV ¹		3 INCH LRV - URV ¹		4 INCH LRV - URV ¹		6 INCH LRV - URV ¹	
	PSIG	LBS/FT³	ACFD (VORTEX)	SCFD (RTU)	ACFD (VORTEX)	SCFD (RTU)	ACFD (VORTEX)	SCFD (RTU)	ACFD (VORTEX)	SCFD (RTU)	ACFD (VORTEX)	SCFD (RTU)
	5	0.061	8,821 - 147,456	12,010 - 200,770	36,137 - 1,274,013	49,202 - 1,733,284	79,333 - 2,791,714	108,017 - 3,805,173	140,988 - 4,966,650	191,964 - 6,762,395	319,550 - 11,256,894	435,087 - 15,326,944
	10	0.077	7,875 - 147,456	13,452 - 251,861	32,264 - 1,274,013	55,109 - 2,174,366	70,871 - 2,794,714	120,983 - 4,773,503	125,879 - 4,966,650	215,007 - 8,483,271	285,304 - 11,256,894	487,313 - 19,277,304
	15	0.093	7,180 - 147,456	14,754 - 302,985	29,416 - 1,273,013	60,443 - 2,615,730	64,579 - 2,791,714	132,695 - 5,742,453	114,768 - 4,966,650	235,821 - 10,205,249	260,122 - 11,256,894	534,448 - 23,130,160
	20	0.108	6,641 - 147,456	15,952 - 354,208	27,206 - 1,273,013	65,354 - 3,057,940	59,728 - 2,794,714	143,474 - 6,713,261	106,146 - 4,966,650	254,977 - 11,930,529	240,580 - 11,256,894	577,905 - 27,040,502
	25	0.124	6,207 - 147,456	17,067 - 405,430	25,429 - 1,204,892	69,919 - 3,312,853	55,827 - 2,645,165	153,498 - 7,272,884	99,214 - 4,700,877	272,791 - 12,925,068	224,870 - 10,654,521	618,280 - 29,294,621
	50	0.203	4,856 - 147,456	21,815 - 662,424	19,894 - 942,623	89,373 - 4,234,597	43,675 - 2,069,392	196,206 - 9,296,439	77,618 - 3,677,638	348,690 - 16,521,245	175,992 - 8,335,353	790,306 - 37,445,343
	75	0.281	4,119 - 147,456	25,720 - 920,725	16,874 - 799,522	105,367 - 4,992,366	37,046 - 1,755,277	231,318 - 10,960,077	65,836 - 3,119,406	411,090 - 19,477,794	149,219 - 7,070,124	931,755 - 44,146,350

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1. SCFD flow values may be interpolated for applications at 60° F.

# SCHNEIDER VORTEX

## Liquid Flowrates & Capacities



Vortex Nominal Flow Rates for liquid (Water, Oil & Condensates)

LIQUID	Line Size	Average K-Factors p/ft3	Vortex Bore Diameter	gal /min		bbl / hr		bbl /day		Max. Sheddar Freq.
	Inches			Min	Max	Min	Max	Min	Max	Hz
				gpm	gpm	bbl/hr	bb/hr	bbl/day	bbl/day	
	3/4	5580	0.740	0.84	41	1.19	58	29	1,395	505.99
	1	2250	0.960	1.4	68	2.00	97	48	2,331	340.89
	1 1/2	570	1.500	3.4	167	4.86	239	117	5,726	212.08
	2	258	1.940	5.7	279	8.14	399	195	9,566	160.38
	2 Class 1500	389	1.690	4.4	212	6.22	303	149	7,269	183.74
	3	78.70	2.870	13	614	18.0	877	432	21,051	107.66
	3 Class 1500	103	2.630	11	514	15.00	734	360	17,623	117.96
	4	34.80	3.83	22	1,091	31.4	1,559	754	37,406	84.59
	4 Class 1500	47.29	3.440	18	881	25.7	1,259	617	30,206	92.82
	6	10.00	5.76	51	2,473	72.3	3,533	1,735	84,789	55.10
	6 Class 900 & 1500	13.68	5.19	41	2,007	58.6	2,867	1,406	68,811	61.17
	8	4.26	7.63	89	4,339	127.0	6,199	3,048	148,766	41.18
	8 Class 900 & 1500	5.98	6.81	71	3,460	101.4	4,943	2,434	118,629	46.10
	10	1.99	9.56	147	6,818	210.0	9,740	5,040	233,760	30.23
	12.00	1.16	11.38	220	9,646	314.1	13,780	7,539	330,720	24.93