

azbil

AX Series
Vortex Meters



**The readings you
need, right where
you need them.**

Multivariable function from a single meter

Vortex multivariable meters from Azbil North America employ three sensing elements in a single meter: a vortex shedding velocity sensor, an RTD temperature sensor, and a solid-state pressure transducer. Within this **single instrument**, you can measure the mass flow rates of gasses, liquids, and steam with **far more accuracy** than with external measurement techniques which may not adequately compensate for dynamic process conditions. With the flexibility to install in almost any location—including hot tapping—you can get precise measurements from nearly any location when you need it.

Multivariable capability within this single housing can also **simplify systems, reduce equipment cost, and ease installation and maintenance hassles**. The wide variety of options and configurations available ensures that there is a meter for any application requirement.



AX 2200

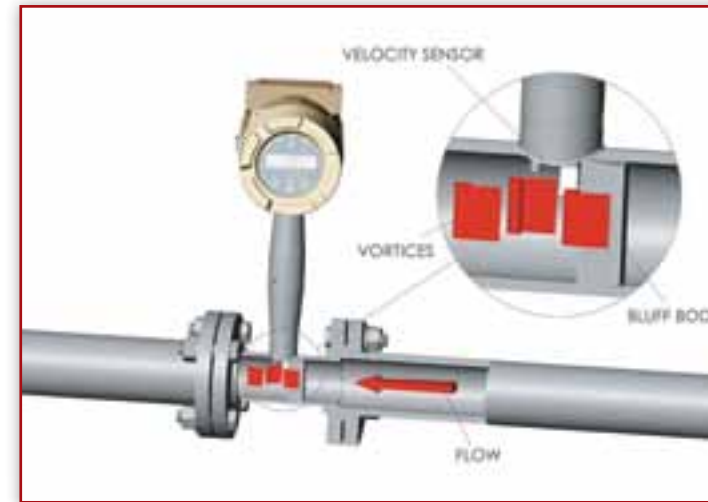
The Readings You Want

- Volumetric or mass flow monitoring of most liquids, gasses, and steam
- Delivers multiple readings from a single installed location, reducing cost and complexity
- Compensated mass flow readings
- Energy Monitoring in real time
- Simple and reliable - no moving parts, easy installation, no fluid to sensor contact
- Rangeability up to 100:1
- Temperature up to 750°F
- Pressure up to 1500 psig

Right Where You Need Them

- Inline install in pipes from 1/2" to 8"
- Hot-tap without process shutdown in any pipe larger than 2"
- Field configurable
- Remote electronics option for harsh environments or difficult locations
- 4-20mA - loop-powered technology saves on energy costs
- HART protocol - Standard
- Modbus communications available
- FM, FMX, ATEX, IECEx Approved

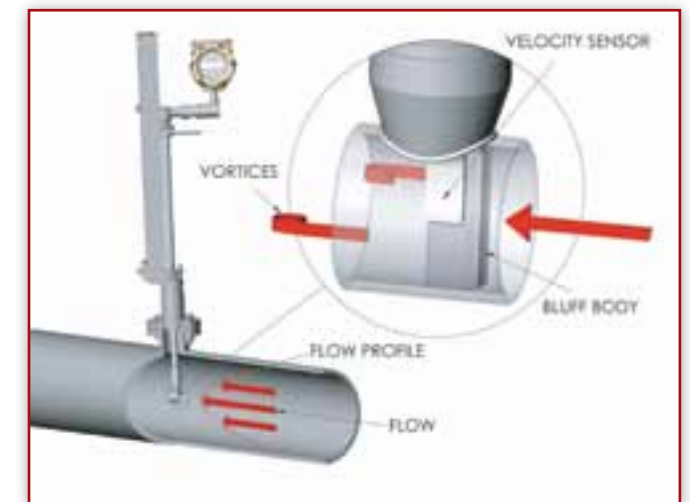
Principles of Operation



The AX Series of Vortex inline flowmeters measure flows of liquid, gas, and steam by measuring the rate at which vortices are alternately shed from a bluff body; this rate has been shown to be directly proportional to the flow velocity.

As flow passes a bluff body in the stream, vortices create pressure differentials which are measured by a piezoelectric crystal sensor, which converts these pulses into electrical signals. The meter uses an all welded sensor design to create a strong unit and minimize potential leakage.

The AX Series can be configured to measure anything from simple volumetric flow of liquids and saturated steam up through multivariable measurements, including mass flow rate, pressure, temperature and density of liquids and steam.



Insertion style vortex meters measure flow by detecting the local velocity at a strategically located position within the pipe. Using local velocity, calculated by measuring the rate at which vortices are alternately shed from a bluff body within the sensor, the AX2300 uses parameters such as fluid type, pipe size, and Reynolds number to calculate accurate measurements.

The AX2300 offers flow computer functionality in a compact, hot-tappable field device. It can be configured to deliver up to three analog 4-20mA outputs of live process measurements, including volumetric flow rate, mass flow rate, pressure, temperature and density. With the Energy Monitoring option, the AX2200 and AX 2300 can also be configured to measure energy consumption within a process or plant.

Many Configurations

Depending on your needs, these meters are available in the following configurations:

AX2200/2300 - Delivers direct readings of volumetric flow rate in applications ranging from general water flows to hydrocarbon fuel flow measurement.

AX2211/2311 - Integrates a precision 1000 Ω platinum RTD temperature sensor for output of a compensated mass reading, typically for flow rates of saturated steam.

AX2222/2322 - Flow computing functionality in a compact field device. This multivariable instrument features both temperature and pressure sensors to provide instantaneous reading of compensated mass flow rates of gasses, liquids and steam. Offers basic output and alarm as well as up to

three 4-20 mA outputs of live process measurements. These output selections are field configurable. The AX2233/2333 offers the same functionality using an external pressure input.

AX2244/2344 - Allows for real-time measurement of energy consumption for a facility or process in steam, hot water, or chilled water. Uses the input from a second sensor on the opposite leg of the process to calculate the change in energy. Can be configured to read in Btu, joules, calories, Watt-hours, Megawatt- hours, and horsepower hours. Local or remote electronics indicate two temperatures, delta T, mass total and energy total.

Excellent field performance

Repeatability

Mass Flow Rate	±0.2% of rate
Volumetric Flow Rate	±0.1% of rate
Temperature	±0.2°F (±0.1°C)
Pressure	±0.05% of full scale
Density	±0.1% of reading

Stability Over 12 Months

Mass Flow Rate	±0.2% of rate
Volumetric Flow Rate	± negligible
Temperature	±0.9°F (±0.5°C)
Pressure	±0.1% of full scale
Density	±0.1% of reading

Response Time

Adjustable from 1 to 100 seconds.

Operating Specifications

Any gas, liquid or steam compatible with 316L stainless steel. Consult factory for other materials or construction. Not recommended for multi-phase fluids.

Process and Ambient Temperature

Process Standard Temperature: -330 to 500°F (-200 to 260°C)
 Process High Temperature: to 750°F (400°C)
 Ambient Operating: -40 to 185°F (-40 to 85°C)
 Ambient Storage: -40 to 185°F (-40 to 85°C)

Pressure Transducer Ratings			
Full Scale Operating Pressure		Max. Over-Range Pressure	
psia	bara	psia	bara
30	2	60	4
100	7	200	14
300	20	600	40
500	35	1000	70
1500	100	2500	175

AX 2200 Accuracy		
Process Variables	Liquids	Gas & Steam
Volumetric Flow Rate	±0.7% of Rate	±1% of Rate
Mass Flow Rate	±1% of Rate	±1.5% of Rate
Temperature	±2°F (±1°C)	±2°F (±1°C)
Pressure	±0.3% of Full Scale	±0.3% of Full Scale
Density	±0.3% of Reading	±0.5% of Reading

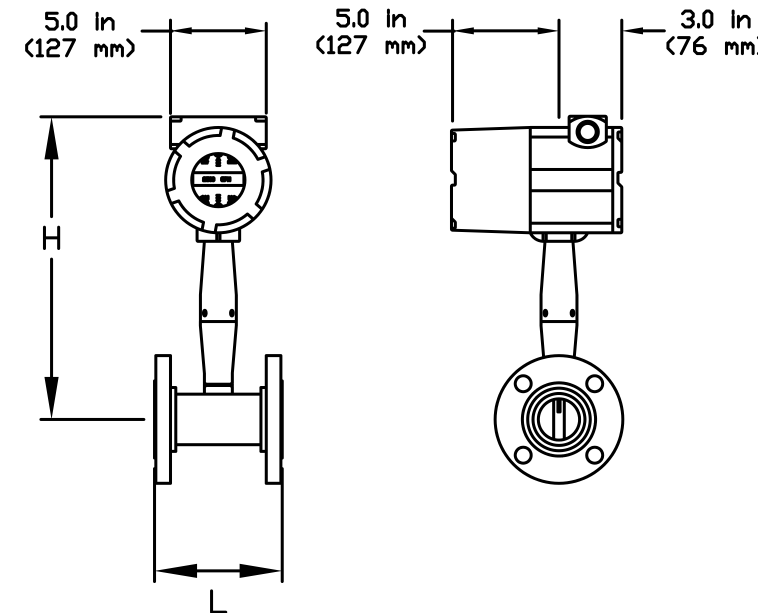
Mass flow rate accuracy for gas and steam based on 50-100% of pressure range.

AX 2300 Accuracy		
Process Variables	Liquids	Gas & Steam
Volumetric Flow Rate	±1.2% of Rate	±1.5% of Rate
Mass Flow Rate	±1.5% of Rate	±2.0% of Rate
Temperature	±2°F (±1°C)	±2°F (±1°C)
Pressure	±1.5% of Full Scale	±0.3% of Full Scale
Density	±0.3% of Reading	±0.5% of Reading

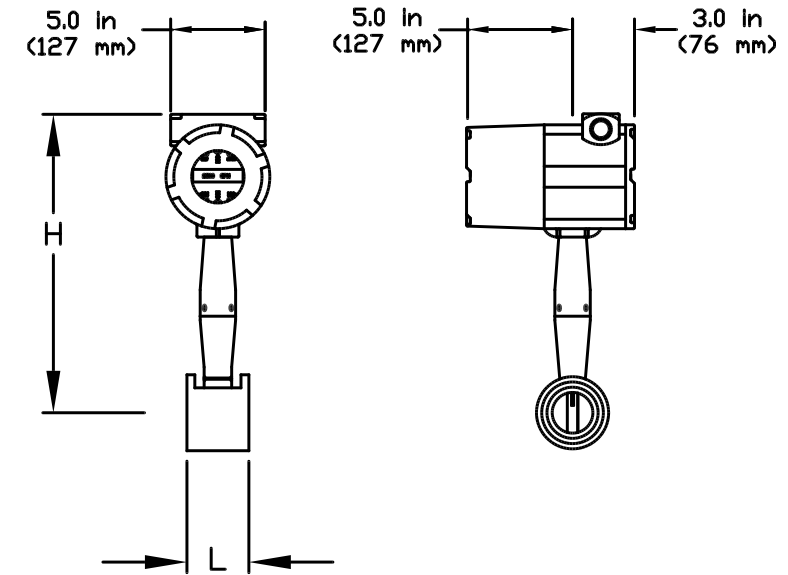
Mass flow rate accuracy for gas and steam based on 50-100% of pressure range.

Dimensional Outline - AX 2200

Flange Install

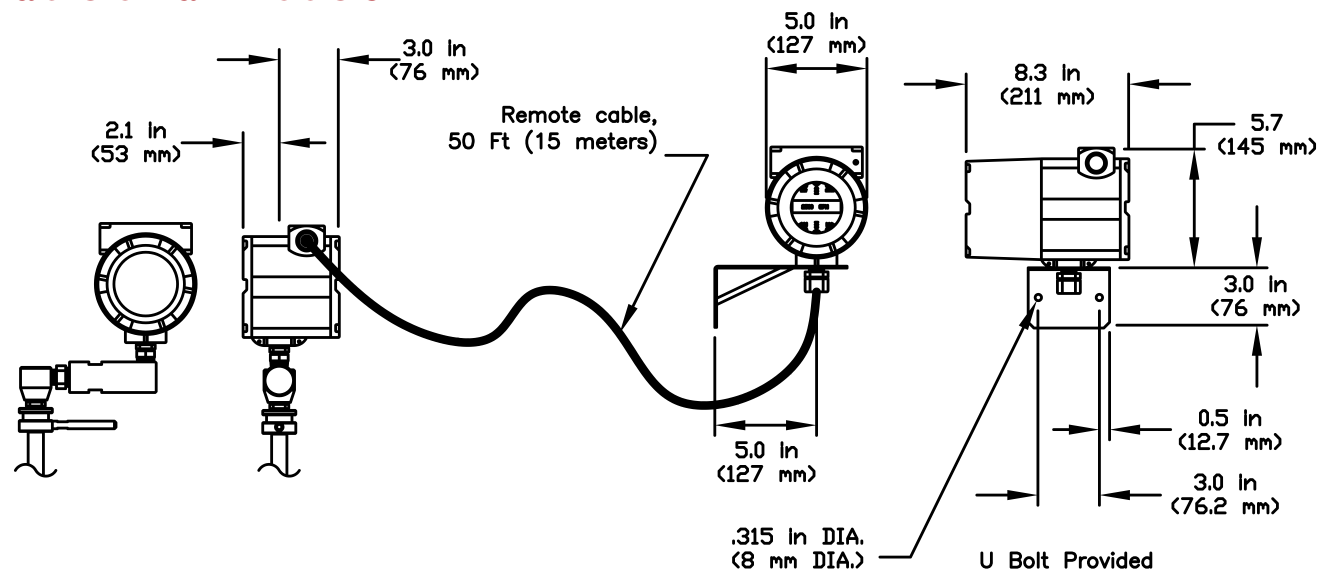


Wafer Install



Remote Electronics Option

Available on all models



AX 2200 Flange Installation

Flow Meter Nominal Size	Weight				
	L	H	ANSI 150 (PN 16)	ANSI 300 (PN 40)	ANSI 600 (PN 64)
0.5 in (15 mm)	4.56 in (116mm)	14.8 in (376mm)	12 lb (5.5 kg)	12.5 lb (5.7 kg)	13 lb (5.9 kg)
0.75 in (20 mm)	4.8 in (122 mm)	15 in (381 mm)	13 lb (5.9 kg)	14 lb (6.4 kg)	14.5 lb (6.6 kg)
1 in (25 mm)	4.94 in (126 mm)	15 in (381 mm)	13.4 lb (6.1 kg)	16.3 lb (7.4 kg)	16.3 lb (7.4 kg)
1.5 in (40 mm)	5.5 in (140mm)	15 in (384 mm)	14.5 lb (6.6 kg)	22.7 lb (10.3 kg)	24.6 lb (11.2 kg)
2 in (50 mm)	6.0 in (153 mm)	15.3 in (389 mm)	19.4 lb (8.8 kg)	26.8 lb (12.2 kg)	33.2 lb (15.1 kg)
3 in (80 mm)	6.9 in (175 mm)	15.8 in (401 mm)	27.5 lb (12.5 kg)	39.4 lb (17.9 kg)	56.1 lb (25.5 kg)
4 in (100 mm)	8.0 in (203 mm)	16.2 in (411 mm)	43.3 lb (19.7 kg)	60.3 lb (27.4 kg)	96 lb (43.6 kg)
6 in (150 mm)	9 in (229 mm)	17.3 in (439 mm)	48.4 lb (22 kg)	96 lb (43.6 kg)	178 lb (80.8 kg)
8 in (200 mm)	10.5 in (267 mm)	18.2 in (462 mm)	71 lb (32.2 kg)	148 lb (67.4 kg)	299 lb (136 kg)

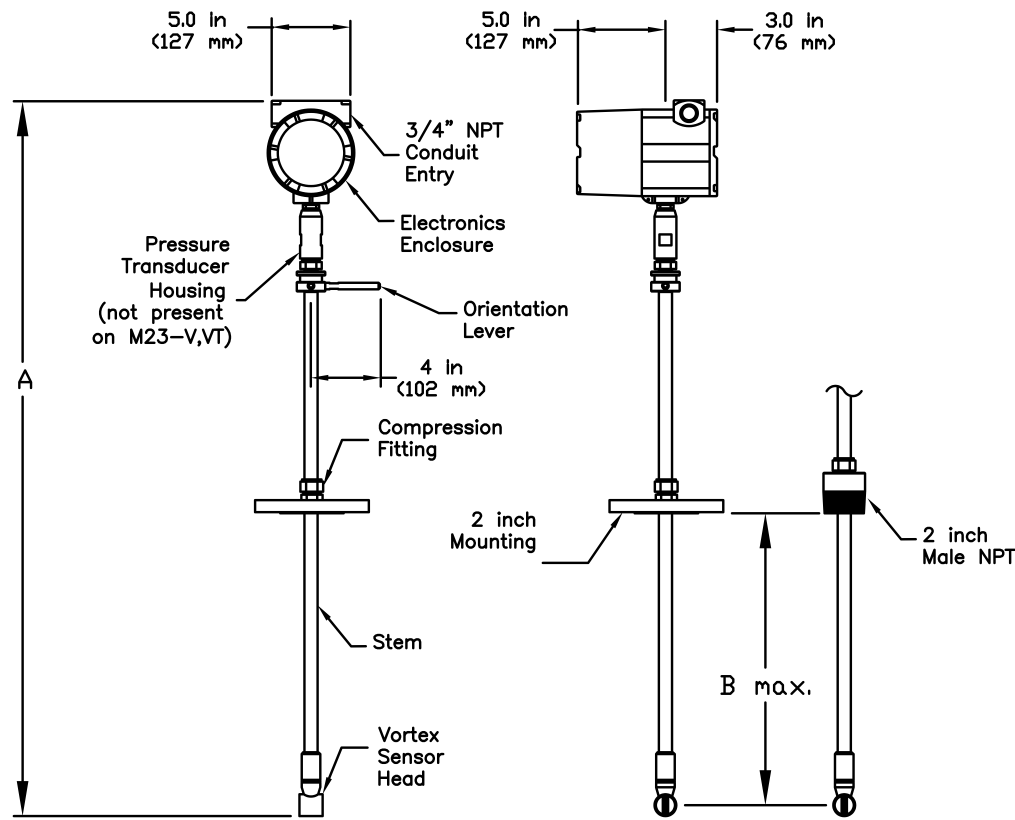
AX 2200 Wafer Installation

L	H	Weight
4.56 in (116mm)	14.8 in (376mm)	9.8 lb (4.4 kg)
4.8 in (122 mm)	15 in (381 mm)	10 lb (4.6 kg)
2.8 in (71 mm)	14.8 in (376 mm)	10.1 lb (4.6 kg)
2.8 in (71 mm)	15.1 in (384 mm)	11.9 lb (5.4 kg)
3.0 in (76 mm)	15.3 in (389 mm)	14.1 lb (6.4 kg)
4 in (102 mm)	15.8 in (401 mm)	22.7 lb (10.3 kg)
4.7 in (119 mm)	16.2 in (411 mm)	33 lb (15 kg)

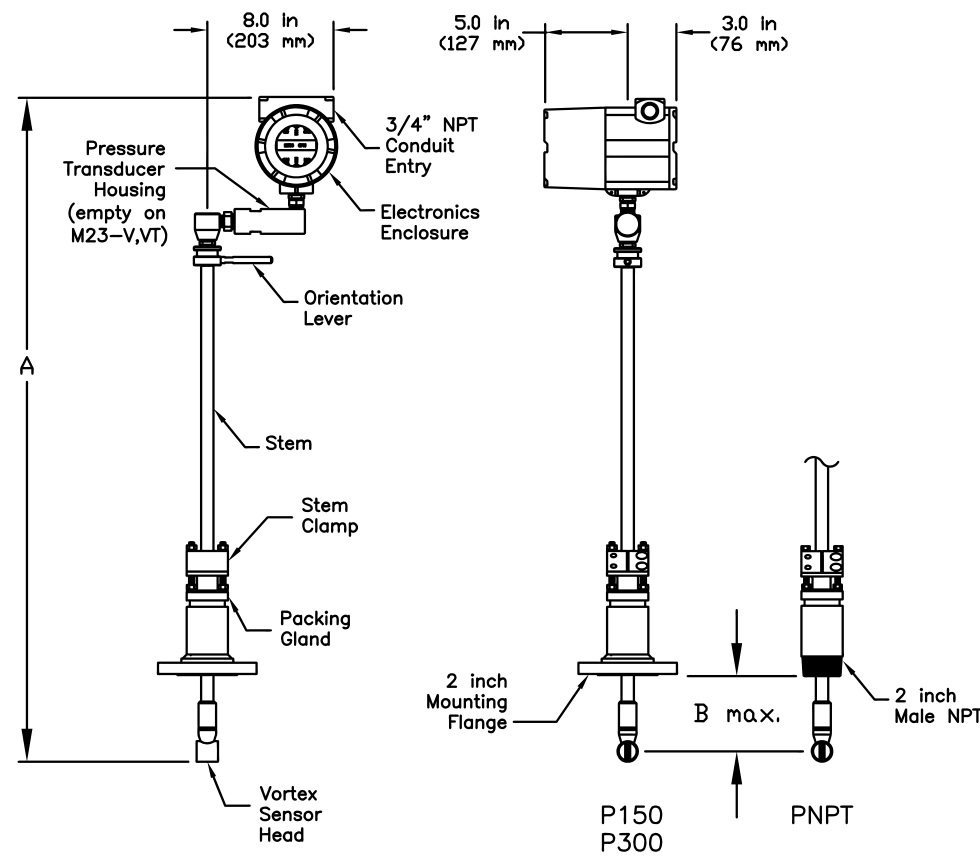
Add 11 lb (5 kg) for remote electronics.

Dimensional Outline - AX 2300

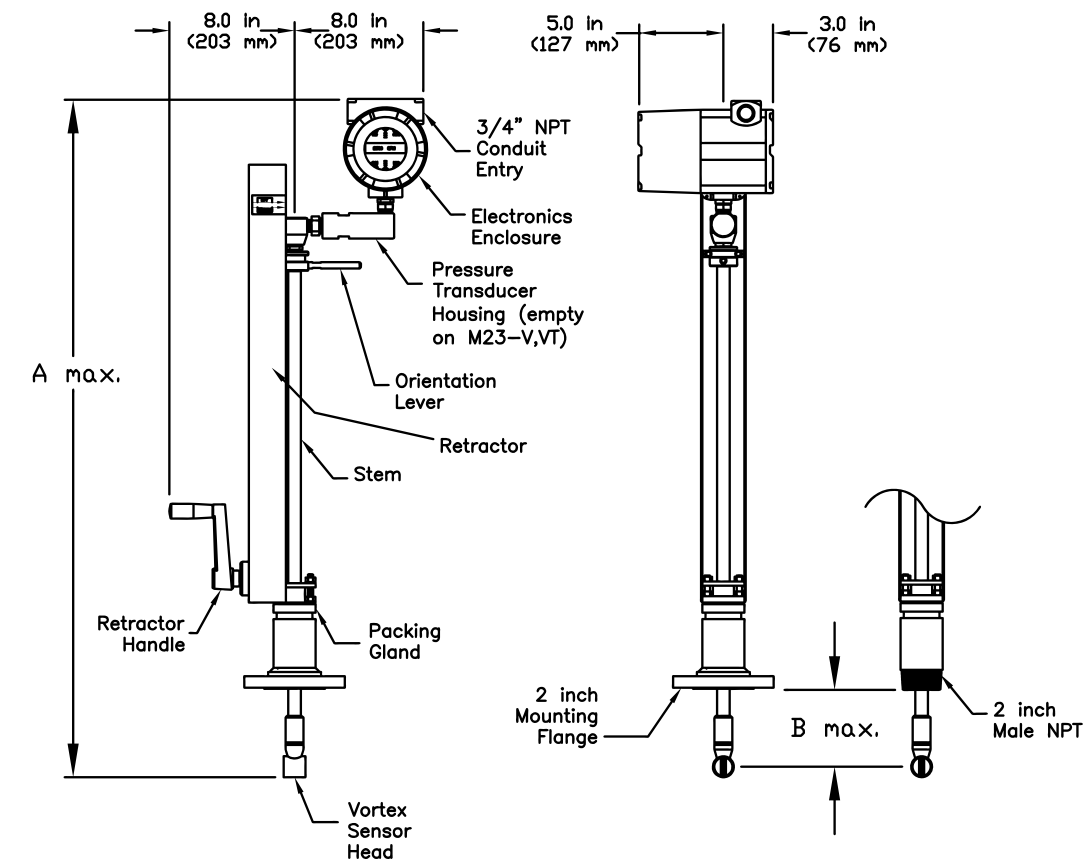
Compression Installation



Packing Gland



Packing Gland - Permanent Retractor



AX 2300 Compression Installation

	CL/Compact Length		SL/Standard Length		EL/Extended Length	
	A	B	A	B	A	B
Male NPT	21.6 in (549 mm)	9.8 in (249 mm)	38 in (965 mm)	26.2 in (665 mm)	50 in (1270 mm)	38.2 in (970 mm)
150 lb Flange	21.6 in (549 mm)	10.9 in (277 mm)	38 in (965 mm)	27.3 in (693 mm)	50 in (1270 mm)	38.3 in (998 mm)
300 lb Flange	21.6 in (549 mm)	10.8 in (274 mm)	38 in (965 mm)	27.2 in (601 mm)	50 in (1270 mm)	39.2 in (996 mm)
600 lb Flange	21.6 in (549 mm)	10.4 in (264 mm)	38 in (965 mm)	26.8 in (681 mm)	50 in (1270 mm)	38.8 in (986 mm)

Approximate Weight*

Compression Fitting		
CL	SL	EL
13 lb (5.7 kg)	14 lb (6.2 kg)	15 lb (6.7 kg)
15 lb (6.8 kg)	16 in (7.3 kg)	17 lb (7.8 kg)
17 lb (7.8 kg)	18 lb (8.3 kg)	19 lb (8.8 kg)
18 lb (8.2 kg)	19 lb (8.7 kg)	20 lb (9.2 kg)

*Add 11 lb (5 kg) for remote electronics.

AX 2300 Packing Gland Installation

	SL/Standard Length		EL/Extended Length	
	A	B	A	B
Male NPT	40.5 in (1029 mm)	21.5 in (546 mm)	52.5 in (1334 mm)	33.5 in (851 mm)
150 lb Flange	40.5 in (1029 mm)	21.5 in (546 mm)	52.5 in (1334 mm)	33.1 in (841 mm)
300 lb Flange	40.5 in (1029 mm)	21.5 in (546 mm)	52.5 in (1334 mm)	33.1 in (841 mm)
600 lb Flange*	40.5 in (1029 mm)	21.5 in (546 mm)	52.5 in (1334 mm)	33.1 in (841 mm)

Approximate Weight*

Removable Retractor		Permanent Retractor	
SL	EL	SL	EL
16 lb (7.1 kg)	17 lb (7.6 kg)	25 lb (11.5 kg)	32 lb (14.5 kg)
21 lb (9.4 kg)	22 in (9.9 kg)	30 lb (13.7 kg)	37 lb (16.7 kg)
25 lb (11.3 kg)	26 lb (11.8 kg)	34 lb (15.5 kg)	41 lb (18.5 kg)
n/a	n/a	35 lb (16.0 kg)	42 lb (19.0 kg)

*Add 11 lb (5 kg) for remote electronics.

AX 2322 Compression Installation

	CL/Compact Length		SL/Standard Length		EL/Extended Length	
	A	B	A	B	A	B
Male NPT	24.6 in (625 mm)	9.8 in (249 mm)	41 in (1041 mm)	26.2 in (665 mm)	53 in (1346 mm)	38.2 in (970 mm)
150 lb Flange	24.6 in (625 mm)	10.9 in (277 mm)	41 in (1041 mm)	27.3 in (693 mm)	53 in (1346 mm)	38.3 in (998 mm)
300 lb Flange	24.6 in (625 mm)	10.8 in (274 mm)	41 in (1041 mm)	27.2 in (601 mm)	53 in (1346 mm)	39.2 in (996 mm)
600 lb Flange	24.6 in (625 mm)	10.4 in (264 mm)	41 in (1041 mm)	26.8 in (681 mm)	53 in (1346 mm)	38.8 in (986 mm)



AX 2300
shown with optional permanent retractor

Specifications and Requirements

Power Requirements

DCL Option: 12-36 VDC loop powered (single output)
 DCH Option: 12-36 VDC, 300 mA mx (multiple outputs)
 AC Option: 85-240 VAC, 50.60Hz, 2 Watts (multiple outputs)

Display

Alphanumeric 2 line x 16 character LCD digital display
 Six pushbuttons can be operated with magnetic wand without removal of enclosure covers
 Display can be mounted in 90° intervals for better viewing

Output Signals

Analog: 4-20 mA
 Alarm: Solid state relay, 40 VDC
 Totalizer Pulse: 50 millisecond pulse, 40 VDC
 Volumetric or Loop Powered Mass: One analog, one totalizer pulse, HART
 Multivariable option: Up to three analog signals, three alarms, one totalizer pulse, HART
 Multivariable option: Modbus process monitoring

Wetted Materials

Standard 316L Stainless Steel, plus
 • Optional Carbon Steel or Hastelloy C
 • DuPont Teflon® based thread sealant on models with pressure transducer

Approvals

FM, FMC Class I, DIV. 1, Groups B,C,D
 Class II/III, DIV. 1, Groups E,F,G
 IP66, Type 4x, T6 Ta=60°
 ATEX II 2 G Ex d IIB + H2 T6
 II 2 D EX tD A21 IP66 T85°C Ta=60°C
 IECEx Ex d IIB + H2 T6
 Ext tD A21 IP66 T85°C Ta=60°C

Velocity Range

Maximum velocity, liquid: 30 ft/sec (9 m/sec)
 Minimum velocity, liquid: 1 ft/sec (.3 m/sec)
 Maximum velocity, gas or steam: 300 ft/sec (90 m/sec)
 Minimum velocity, gas or steam:

$$\frac{5}{\sqrt{\text{density (lb/ft}^3)}} \quad \frac{6}{\sqrt{\text{density (kg/m}^3)}}$$

Consult your Azbil representative for assistance with calculating flow range.

Piping Conditions		
Condition	Pipe Diameters (D)	
	Upstream	Downstream
One 90° elbow before meter	10D	5D
Two 90° elbows before meter	15D	5D
Two 90° elbows before meter, out of plane	25D	5D
Reduction before meter	10D	5D
Expansion before meter	20D	5D
Partially open valve	25D	5D

Water Min and Max Flow Rates - AX 2200									
Rate	Nominal Pipe Size (in)								
	0.5	0.75	1	1.5	2	3	4	6	8
GPM min	0.9	1.4	2.2	5.5	9.2	21	36	81	142
GPM max	22	40	67	166	276	618	1076	2473	4270
Nominal Pipe Size (mm)									
	15	20	25	40	50	80	100	150	200
M ³ /hr min	0.2	0.3	0.5	1.3	2.1	4.7	8.1	18	32
M ³ /hr max	5	9	15	38	63	140	244	554	970

Water Min and Max Flow Rates - AX 2300						
Rate	Nominal Pipe Size (in)					
	3	6	8	12	16	24
GPM min	20.6	81.3	142	317	501	1138
GPM max	618	2473	4270	9501	15043	34144
Nominal Pipe Size (mm)						
	80	150	200	300	400	600
M ³ /hr min	5.2	20.4	35.4	79.2	125	284
M ³ /hr max	157	614	1062	2337	3753	8537



AX 2200

Typical Saturated Steam Minimum and Maximum Flow Rates (lb/hr)										
Pressure	Nominal Pipe Size (in)									
	0.5	0.75	1	1.5	2	3	4	6	8	
5 psig	6.5	12	20	49	82	183	318	722	1264	
	52	122	265	650	1087	2431	4231	9594	16806	
100 psig	15	27	46	112	187	419	728	1652	2893	
	271	639	1386	3405	5690	12729	22156	50233	87998	
200 psig	20	37	62	151	253	565	983	2229	3905	
	493	1163	2525	6203	10365	23184	40354	91494	160279	
300 psig	24	45	74	182	304	680	1184	2685	4704	
	716	1688	3664	9000	15040	33642	58556	132763	232575	
400 psig	28	51	85	209	349	780	1358	3079	5393	
	941	2220	4816	11831	19770	44222	76971	174516	305717	
500 psig	31	57	95	233	389	870	1514	3433	6014	
	1170	2760	5988	14711	24582	54987	95710	217001	380148	

Typical Saturated Steam Minimum and Maximum Flow Rates (kg/hr)										
Pressure	Nominal Pipe Size (mm)									
	15	20	25	40	50	80	100	150	200	
0 barg	3	5	8	19	32	72	126	286	500	
	18	42	91	224	375	838	1459	3309	5797	
5 barg	6	11	18	45	75	176	290	658	1153	
	95	224	485	1192	1992	4455	7754	17581	30799	
10 barg	8	15	24	59	99	222	387	877	1537	
	168	397	862	2118	3539	7915	13777	21327	54270	
15 barg	9	17	29	71	119	266	463	1050	1840	
	241	569	1236	3036	5073	11347	19750	44779	78444	
20 barg	11	20	33	81	136	304	529	1199	2100	
	314	742	1610	3956	6611	14787	25738	58355	102226	
30 barg	13	24	40	99	165	369	642	1455	2548	
	463	1092	2370	5822	9729	21763	37880	85884	150451	

Typical Air Minimum and Maximum Flow Rates (lb/hr)										
Pressure	Nominal Pipe Size									
	0.5	0.75	1	1.5	2	3	4	6	8	
5 psig	1.8	3	5	13	22	50	87	198	347	
	18	41	90	221	369	826	1437	3258	5708	
100 psig	5	9	15	38	63	141	245	555	972	
	138	325	704	1730	2890	6466	11254	25515	44698	
200 psig	7	13	21	52	86	193	335	761	1332	
	258	609	1322	3248	5427	12140	21131	47911	83931	
300 psig	8	15	25	63	104	234	407	922	1615	
	380	896	1944	4775	7978	17847	31064	70431	123375	
400 psig	10	18	29	72	120	269	467	1060	1857	
	502	1183	2568	6309	10542	23580	41043	93057	163000	
500 psig	11	20	33	80	134	300	521	1182	2071	
	624	1472	3195	7849	13115	28034	51063	115775	203000	

Typical Air Minimum and Maximum Flow Rates (kg/hr)										
Pressure	Nominal Pipe Size (mm)									
	15	20	25	40	50	80	100	150	200	
0 barg	3	5	9	21	36	79	138	313	549	
	28	66	142	250	584	1307	2275	5157	9034	
5 barg	7	13	21	52	87	194	337	764	1339	
	165	390	847	2080	3476	7775	13533	30682	53749	
10 barg	9	17	29	70	117	262	457	1035	1814	
	304	716	1554	3819	6381	14273	24844	56329	98676	
15 barg	11	21	34	85	142	317	551	1250	2190	
	442	1044	2265	5565	9299	20801	36205	82087	143801	
20 barg	13	24	40	97	162	363	632	1434	2511	
	582	1373	2979	7318	12229	27354	47612	107949	189105	
30 barg	16	29	48	118	198	442	770	1745	3057	
	862	2034	4414	10843	18119	40529	70544	159942	280187	

AX 2300

Typical Saturated Steam Minimum and Maximum Flow Rates (lb/hr)						
Pressure	Nominal Pipe Size (in)					
	3	6	8	12	16	24
5 psig	205	800	1385	3099	4893	11132
	2721	10633	18412	41196	65039	147954
100 psig	468	1831	3170	7092	11197	25472
	14246	55674	96407	215703	340546	774698
200 psig	632	2471	4278	9572	15111	34377
	25948	101405	175595	392880	620268	1411029
300 psig	762	2976	5153	11530	18203	41410
	37652	147145	254799	570093	900047	2047489
400 psig	873	3412	5908	13219	20870	47477
	49494	193420	334930	749382	1183103	2691404
500 psig	974	3805	6588	14741	23272	52742
	61543	240507	416468	931816	1471125	3346615

Typical Saturated Steam Minimum and Maximum Flow Rates (kg/hr)						
Pressure	Nominal Pipe Size (mm)					
	80	150	200	300	400	600
0 barg	81	316	548	1226	1936	4404
	938	3667	6350	14209	22432	51039
5 barg	187	729	1263	2826	4461	10151
	4986	19486	33742	75495	119189	271187
10 barg	249	972	1683	3767	5947	13530
	8859	34620	59949	134132	211764	481821
15 barg	298	1164	2016	4510	7120	16200
	12700	49629	85939	192283	303570	690705
20 barg	340	1329	2301	5148	8128	18493
	16550	64676	111995	250581	395609	900119
30 barg	413	1612	2791	6246	9860	22435
	24357	95187	164827	368789	582234	1324739

Typical Air Minimum and Maximum Flow Rates (lb/hr)						
Pressure	Nominal Pipe Size					
	3	6	8	12	16	24
5 psig	56	220	381	852	1345	3059
	924	3611	6253	13991	22089	50250
100 psig	157	615	1065	2383	3763	8560
	7236	28279	48969	109564	172977	393500
200 psig	216	843	1460	3266	5156	11729
	13588	53101	91950	205732	324804	738886
300 psig	262	1022	1770	3960	6251	14221
	19974	78059	135169	302430	477467	1086176
400 psig	301	1175	2034	4551	7186	16346
	26391	103136	178593	399588	630859	1435121
500 psig	335	1310	2269	5077	8015	18233
	32834	128314	222191	497135	784856	1785464

Typical Air Minimum and Maximum Flow Rates (kg/hr)						
Pressure	Nominal Pipe Size (mm)					
	80	150	200	300	400	600
0 barg	89	347	601	1345	2124	4833
	1463	5716	9897	22145	34962	79547
5 barg	217	847	1467	3282	5181	11788
	8702	34006	58885	131751	208004	473266
10 barg	294	1148	1987	4446	7020	15972
	15975	62430	108105	241878	381870	868857
15 barg	355	1385	2399	5386	8474	19282
	23280	90979	157542			

Model Selection Guide - AX2200 In-Line Vortex Meter

AX2200	015	S	FA	R3	D	1	A	S	2	MCPT
Parent Mode Code										
In-Line Multivariable Mass Vortex Flow Meter										
AX2200 Volumetric Flow Meter for Liquid, Gas and Steam										
AX2211 Velocity and Temperature Sensors										
AX2222 Velocity, Temperature and Pressure Sensors										
AX2233 Velocity, Temperature and External Pressure Input										
AX2244 Energy Output Options										
AX2255 Energy Options with Pressure Sensor										
Feature 2: Flow Body Line Size										
015	1/2-inch Nominal Bore (15mm)									
020	3/4-inch Nominal Bore (20mm)									
025	1-inch Nominal Bore (25mm)									
040	1.5-inch Nominal Bore (40mm)									
050	2-inch Nominal Bore (50mm)									
080	3-inch Nominal Bore (80mm)									
100	4-inch Nominal Bore (100mm)									
150	6-inch Nominal Bore (150mm)									
200	8-inch Nominal Bore (200mm)									
250	10-inch Nominal Bore (250mm)									
300	12-inch Nominal Bore (300mm)									
Feature 3: Meter Body Material										
C	Carbon Steel									
S	Stainless Steel									
H	Hastelloy									
Feature 4: Process Connection										
FA	ANSI 150# Flange									
FB	ANSI 300# Flange									
FC	ANSI 600# Flange									
D1	DIN PN 16 Flange									
D2	DIN PN 40 Flange									
D3	DIN PN 64 Flange									
WC	Wafer ANSI 600#									
Feature 5: Electronics Enclosure										
LE	NEMA 4X, IP66 Enclosure (Integral)									
R_	Remote NEMA 4X, IP66 Enclosure (Specify cable length as second character from Table A)									
Feature 6: Display Option										
D	Digital Display and Programming Buttons									
X	No Display									
Feature 7: Input Power										
1	12-36 VDC, 25mA, 1W max. required on loop powered meters, Output Code "A" only									
2	12-36 VDC, 300mA, 9W max. - use with Output Codes "B", "C", "D" and "E"									
3	100-240 VAC, 50/60Hz line power, 5W max. - use with Output Codes "B", "C", "D" and "E"									
Feature 8: Output Options										
A	Loop powered option - one analog output (4-20mA), one alarm, one pulse, HART (Input Power Option Code "1" only)									
B	One analog output (4-20mA), one alarm, one pulse, HART Comm. (Input Power Option Code "2" or "3" only)									
C	One analog output (4-20mA), one alarm, one pulse, MODBUS Comm. (Input Power Option Code "2" or "3" only)									
D	Three analog outputs (4-20mA), three alarms, one pulse, HART (AX2222 & AX2233 only), Input Power Option Code "2" or "3" only									
E	Three analog outputs (4-20mA), three alarms, one pulse, MODBUS Comm. (AX2222 & AX2233 only), Input Power Option Code "2" or "3" only									
Feature 9: Temperature Options										
S	Standard Temperature Process Temperature -330° to 500°F (-200° to 260°C)									
H	High Temperature Preprocess Temperature 750°F (400°C)									
Feature 10: Pressure Options										
X	No Pressure Sensor									
A	Maximum 30 psia (2 bara), Proof 60 psia (4 bara)									
B	Maximum 100 psia (7 bara), Proof 200 psia (14 bara)									
C	Maximum 300 psia (20 bara), Proof 600 psia (41 bara)									
D	Maximum 500 psia (34 bara), Proof 1000 psia (64 bara)									
E	Maximum 1500 psia (100 bara), Proof 2500 psia (175 bara)									
Feature 11: Certification Documents										
MC	Material Certificates - US Mill certs on all wetted parts									
PT	Pressure Test Certificate									
CC	Certificate of Conformance									
NC	NACE Certification									
O2	Oxygen Cleaning									
PD	PED certified bodies									
A1	25' Armored Cable with Glands(ATEX, IECEX) V meter only - Adder to Remote option									
A2	50' Armored Cable with Glands(ATEX, IECEX) V meter only - Adder to Remote option									
A3	25' Armored Cable with Glands(ATEX, IECEX) VT, VTP meter only - Adder to Remote option									
A4	50' Armored Cable with Glands(ATEX, IECEX) VT, VTP meter only - Adder to Remote option									
XX	Future Hazardous Location Approvals (two digit code for each)									

Option Code	Length (meters)
1	3
2	5
3	10
4	15
6	20
Y	Custom Length

Model Selection Guide - AX2300 Insertion Vortex Meter

AX2300	S	R3	D	1	A	S	2	CF150	MCPT
Parent Mode Code									
Insertion Multivariable Mass Vortex Flow Meter									
AX2300 Volumetric Flow Meter for Liquid, Gas and Steam									
AX2311 Velocity and Temperature Sensors									
AX2322 Velocity, Temperature and Pressure Sensors									
AX2333 Velocity, Temperature and External Pressure Input									
AX2344 Energy Output Options									
AX2355 Energy Options with Pressure Sensor									
Feature 2: Probe Length									
S	Standard Length								
C	Compact Length								
E	Extended Length								
Feature 3: Electronics Enclosure									
LE	NEMA 4X, IP66 Enclosure (Integral)								
R_	Remote NEMA 4X, IP66 Enclosure (Specify cable length as second character from Table A)								
Feature 4: Display Option									
D	Digital Display and Programming Buttons								
X	No Display								
Feature 5: Input Power									
1	12-36 VDC, 25mA, 1W max. required on loop powered meters, Output Code "A" only								
2	12-36 VDC, 300mA, 9W max. - use with Output Codes "B", "C", "D" and "E"								
3	100-240 VAC, 50/60Hz line power, 5W max. - use with Output Codes "B", "C", "D" and "E"								
Feature 6: Output Options									
A	Loop powered option - one analog output (4-20mA), one alarm, one pulse, HART (Input Power Option Code "1" only)								
B	One analog output (4-20mA), one alarm, one pulse, HART Comm. (Input Power Option Code "2" or "3" only)								
C	One analog output (4-20mA), one alarm, one pulse, MODBUS Comm. (Input Power Option Code "2" or "3" only)								
D	Three analog outputs (4-20mA), three alarms, one pulse, HART (AX2222 & AX2233 only), Input Power Option Code "2" or "3" only								
E	Three analog outputs (4-20mA), three alarms, one pulse, MODBUS Comm. (AX2222 & AX2233 only), Input Power Option Code "2" or "3" only								
Feature 7: Temperature Options									
S	Standard Temperature Process Temperature -330° to 500°F (-200° to 260°C)								
H	High Temperature Preprocess Temperature 750°F (400°C)								
Feature 8: Pressure Options									
X	No Pressure Sensor								
A	Maximum 30 psia (2 bara), Proof 60 psia (4 bara)								
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D	Maximum 500 psia (34 bara), Proof 1000 psia (64 bara)								
E	Maximum 1500 psia (100 bara), Proof 2500 psia (175 bara)								
Feature 9: Process Connections									
Code					Code				
CFNPT	Compression, 2 inch NPT				PG300	Packing Gland, 2 inch ANSI 300# Flange			
CF150	Compression, 2 inch ANSI 150# Flange				PGP40	Packing Gland, DIN DN50 PN 40 Flange			
CFP16	Compression, DIN DN50 PN16 Flange				PGNPR	Packing Gland, 2 inch NPT, Retractor			
CF300	Compression, 2 inch ANSI 300# Flange				PG15R	Packing Gland, 2 inch ANSI 150# Flange, Retractor			
CFP40	Compression, DIN DN50 PN40 Flange				PGP1R	Packing Gland, DIN DN50 PN16, Retractor			
CF600	Compression, 2 inch ANSI 600# Flange				PG30R	Packing Gland, 2 inch ANSI 300# Flange, Retractor			
CFP64	Compression, DIN DN59 PN64 Flange				PGP4R	Packing Gland, DIN DN50 PN 40 Flange, Retractor			
PGNPT	Packing Gland, 2 inch NPT				PG60R	Packing Gland, 2 inch ANSI 600# Flange, Retractor			
PG150	Packing Gland, 2 inch ANSI 150# Flange				PGP6R	Packing Gland, DIN DN50 PN64 Flange, Retractor			
PGP16	Packing Gland, DIN DN50 PN16								
Feature 10: Certification Documents									
MC	Material Certificates - US Mill certs on all wetted parts								
PT	Pressure Test Certificate								
CC	Certificate of Conformance								
NC	NACE Certification								
O2	Oxygen Cleaning								
PD	PED certified bodies								
A1	25' Armored Cable with Glands(ATEX, IECEX) V meter only - Adder to Remote option								
A2	50' Armored Cable with Glands(ATEX, IECEX) V meter only - Adder to Remote option								
A3	25' Armored Cable with Glands(ATEX, IECEX) VT, VTP meter only - Adder to Remote option								
A4	50' Armored Cable with Glands(ATEX, IECEX) VT, VTP meter only - Adder to Remote option								
XX	Future Hazardous Location Approvals (two digit code for each)								

Option Code	Length (meters)
1	3
2	5
3	10
4	15
6	20
Y	Custom Length



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