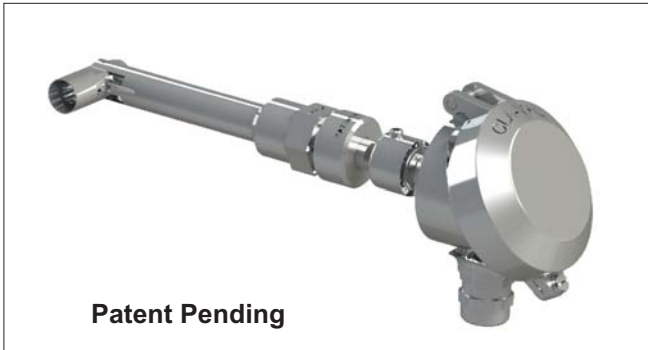


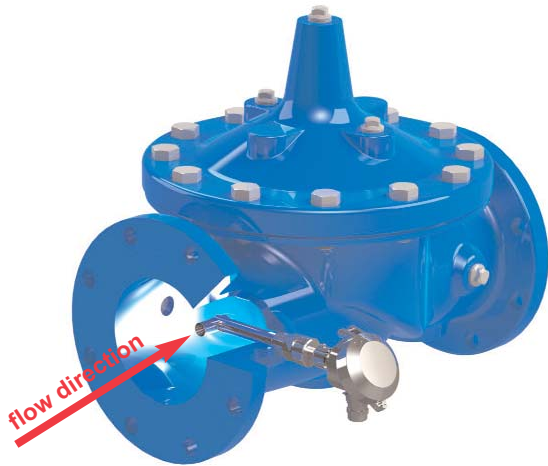


# — MODEL — X144

## e-FlowMeter



Patent Pending



Installation view of the X144 e-FlowMeter

**Note: Consult Factory for Angle Pattern Applications**

### Frequency Measurement

The X144 e-FlowMeter uses the vortex shedding method to measure flow. The meter is inserted into the inlet tapping of the valve and the measurement cylinder is oriented parallel to the direction of flow. The flow enters the measurement cylinder where it encounters the bluff body, generating vortices, which in turn, deflects off the piezoelectric sensor.

The sensor counts the vortices and communicates the data to the meter's integral circuit board. The flow data signal is converted to 4-20mA, or transistor (NPN) pulse, depending on the desired application.

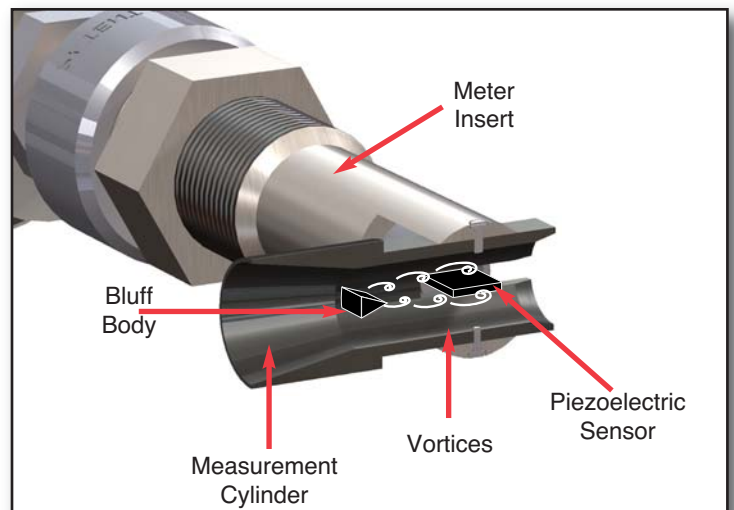
- The e-FlowMeter can be retrofitted to an existing Cla-Val Automatic Control Valve or factory assembled on a new valve
- Alleviates the need for an in-line meter and the associated installation costs
- IP 68 Submersible
- Provides flow data with accuracy +/- 2% of Full Scale
- Mounts on either inlet body tapping of the Cla-Val Control Valve
- Stainless Steel Construction
- 4-20mA Loop Powered
- Plug-and-Play Metering
- No Moving Parts
- Independent laboratory tested:
  - Utah State University,
  - Imperial College - London



The Cla-Val Model X144 e-FlowMeter is a vortex shedding insertion flow meter designed to be retrofitted into a Cla-Val Automatic Control Valve to provide accurate flow measurement data without the need to install a separate meter.

Configured for installation in the inlet tapping of a Cla-Val Automatic Control Valve, the X144 can be used in valves directly downstream of a flow disturbance such as elbows, valves or a reducer. (See page 2 for installation guidelines)

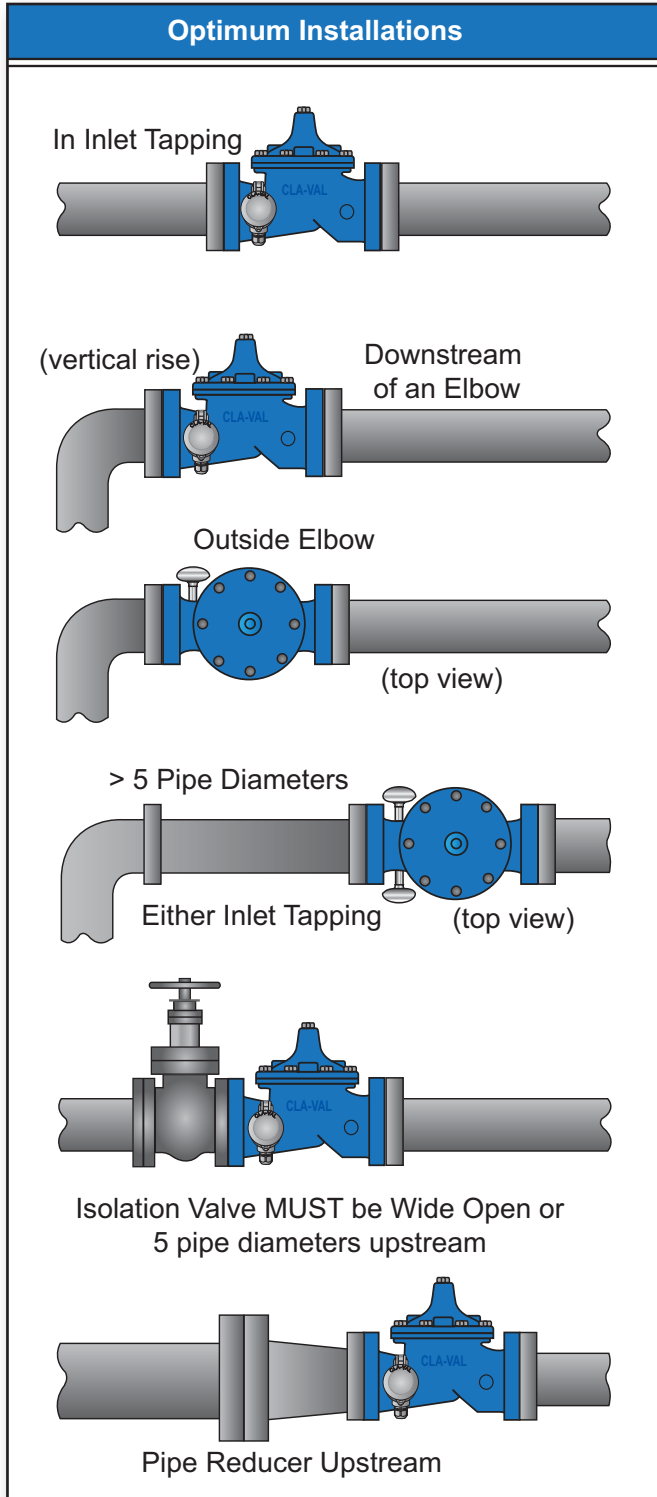
The X144 e-FlowMeter employs an innovative swivel mechanism which allows the meter to be inserted into tappings as small as 1/2-inch. For applications involving installation in close proximity to pump discharge, please consult factory with details.



# Installation Guidelines and Typical Applications

## Installation Locations

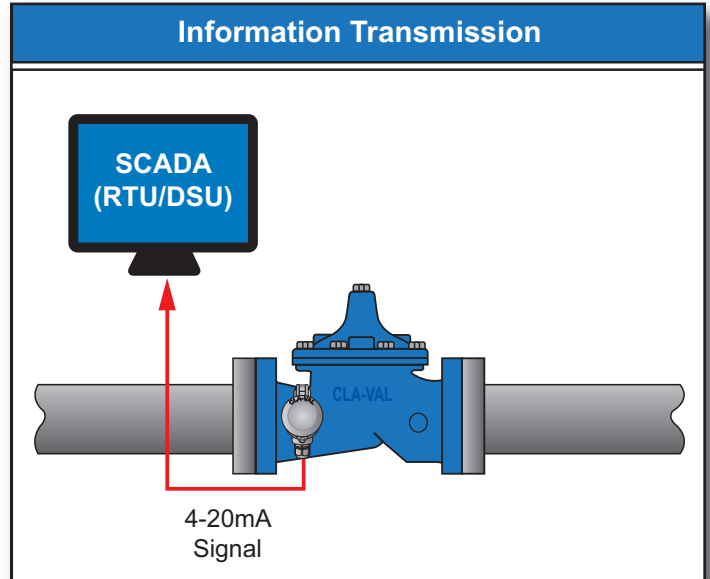
For optimum performance, it is recommended that the valve in which the X144 e-FlowMeter is installed be located as shown below.



Note: Consult factory for other installation configurations

## Information Transmission

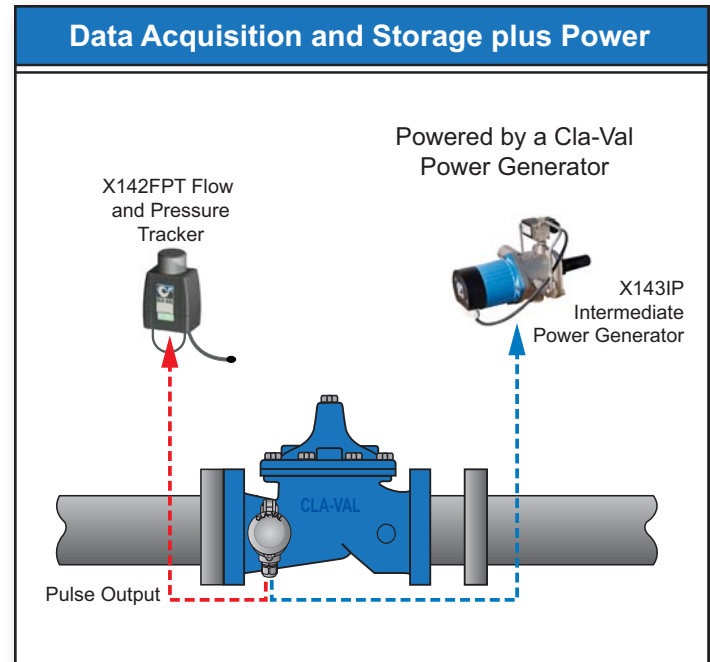
The X144 e-FlowMeter measures and transmits flow information via a 4-20mA signal to SCADA equipment.



## Data Acquisition and Storage using Cla-Val Power Generator

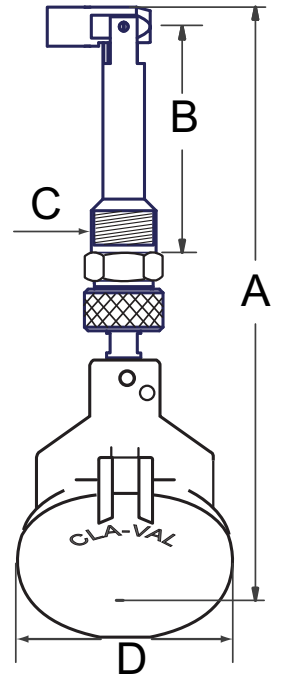
- The X144 e-FlowMeter connects to most commercially available loggers with the choice of 4-20mA or pulse output.
- Both the logger and the e-FlowMeter can be powered by integral Cla-Val Power Generators

To learn more about the X143IP Power Generator visit [www.cla-val.com/power-generators.cfm](http://www.cla-val.com/power-generators.cfm)



## X144 Dimensions

X144 Sizes		1	2	3	4
Full Port Valve Sizes		2*, 2-1/2, 3	4, 6	8, 10	12, 14, 16**
Reduced Port Valve Sizes		4	6, 8	10, 12	14, 16, 18, 20, 24**
Overall Length (in inches)	A	8.85	9.45	13.18	17.91
Insertion Length (in inches)	B	2.3	2.8	6.8	17.6
Pipe Thread (NPT)	C	1/2"	3/4"	1"	1"
Overall With (in inches)	D	3.25	3.25	3.25	3.25



\*2" X144 e-FlowMeter may be installed on new valves only

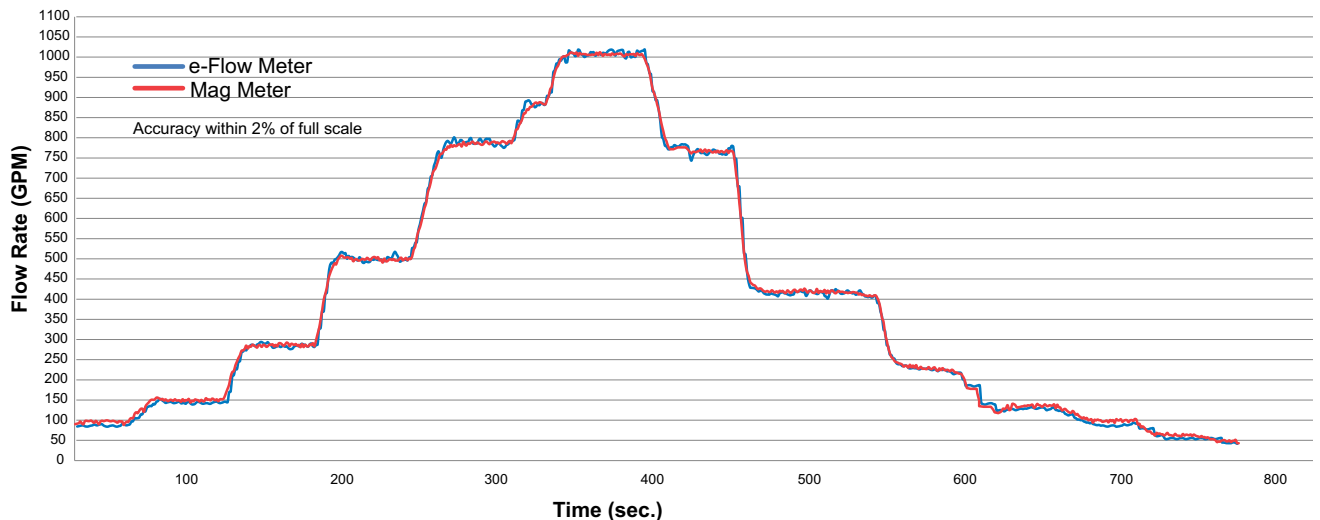
\*\* For larger applications, please consult factory

## X144 e-FlowMeter Operational Flow Range

Line Size inches (mm)	*2" (50mm) (100-49 Body)	2-1/2" (65mm)	3" (80mm)	4" (100mm)	6" (150mm)	8" (200mm)	10" (250mm)	12" (300mm)	16" (400mm)
Minimum Flow (GPM)	10	10	15	25	60	100	160	230	360
Maximum Flow (GPM)	210	300	460	800	1800	3150	4950	7000	11000
Minimum Flow (l/s)	0.65	0.65	1.0	1.5	3.8	6.3	10.0	15	23
Maximum Flow (l/s)	13.3	18.9	29	50	110	200	310	440	700

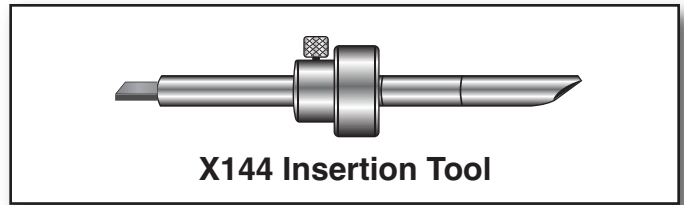
## Typical Performance

### X144 e-FlowMeter vs. Mag Meter



## Options

- Remote Mounted Display
- Field Optimization\*
- Pulsed output proportional to flow rate for low power consumption
- \* Using e-FlowMeter Customer Software (see below)



## Insertion Tool and Locking Ring

- Required for installation
- Tool allows the proper installation and alignment of the bluff body to be parallel to upstream flow.

## Power Requirement

- 12/24 VDC, 0.7 Watts minimum.

## X144 e-Flow Meter Sizing

- The X144 threads directly into the inlet tapping of a Cla-Val Control Valve. The size of the e-FlowMeter is dependent on the specific valve size for which it has been calibrated - no additional fittings are required.

**See dimension chart on previous page.**

## Cabling

- The unit is supplied with 30 feet of cable.

## X144 e-FlowMeter Analog Range (4-20mA Scaling): Factory Settings

Port Style	Line Size inches (mm)	*2" (50) (100-49 Body)	2-1/2" (65)	3" (80)	4" (100)	6" (150)	8" (200)	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)												
Full Port Valves 4mA = 0 (GPM - l/s)	20mA Range (GPM)	260	375	575	1000	2250	3900	6000	8750	10500	14000	<b>Consult factory</b>														
	20mA Range (l/s)	16.4	23.7	36.3	63.1	140	245	380	550	660	880															
Full Port Pulse Weight = 250ms	Gal/Pulse	10	12.5	20	35	75	130	200	300	350	475				<b>Consult factory</b>											
	l/Pulse	38	48	75	130	280	500	750	1140	1320	1800															
Reduced Port Valves 4mA = 0 (GPM- l/s)	20mA Range (GPM)	not available			675	1600	2900	4500	5650	7750	9350							<b>Consult factory</b>								
	20mA Range (l/s)				42.5	100	180	285	355	490	590															
Reduced Port Valves Pulse Weight = 250ms	Gal/Pulse				not available			22.5	53	95	150										190	310	310	<b>Consult factory</b>		
	l/Pulse							85	200	365	565										710	1200	1200			

**Note:** pulse length = 250ms      \*2" X144 e-FlowMeter may be installed on new valves only



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