

# WEDGE TYPE FLOW ELEMENT

## WF SERIES

Approvals:



Wedge shaped orifice plate is detecting element for the wedge type flow meter. It is a V-Shaped of throttle, and the smooth vertex is facing down. This is conducive to liquid which contains suspended or viscous particles passing through, and the liquid won't be choked up at upstream in the throttle.

### Feature

The wedge type flow meter is available for:

1. The liquid which viscous is higher than 500 mPa·s, such as fuel oil, residual oil and heavy oil.
2. Liquid-Solid mixture which contains suspended particles, such as slurry or sewage.
3. The Reynolds is available for  $Re_D=300$  to  $10^6$ , therefore it can be used in the fluid of gases and steam.
4. The common technical parameters is  $25\text{mm} \leq D \leq 600\text{mm}$ ,  $PN \leq 6.4\text{MPa}$ ,  $t \leq 200^\circ\text{C}$ .

### Technical Data

**Style:** Integral or Separate available

**Service:** Please refer to the *Feature* as above

**Material:** SS316 standard; option available

**Accuracy:**  $\pm 0.5\%$  of actual flow rate over calibrated range for 1"~24"

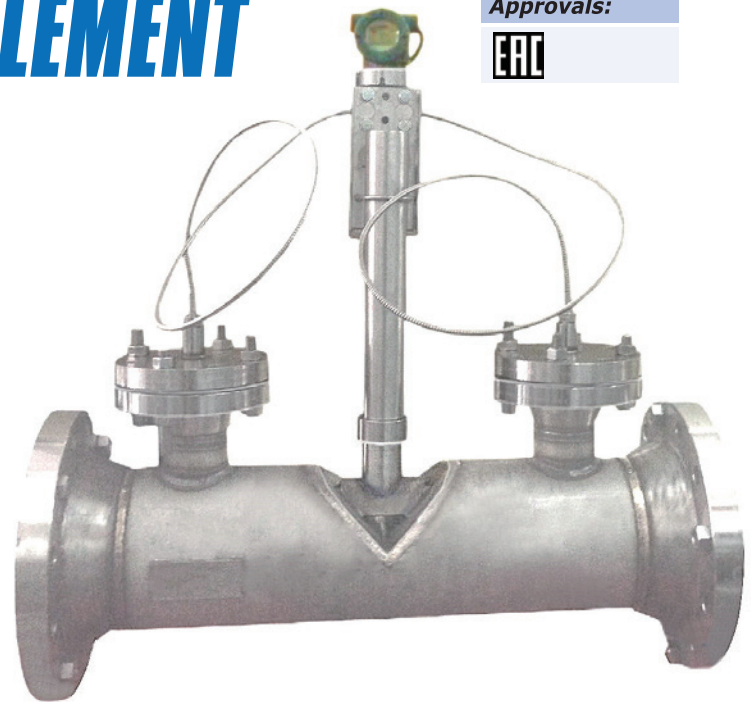
**Repeatability:**  $\pm 0.2\%$

**Line Size:** Unlimited range, with examples from 1" to 24"

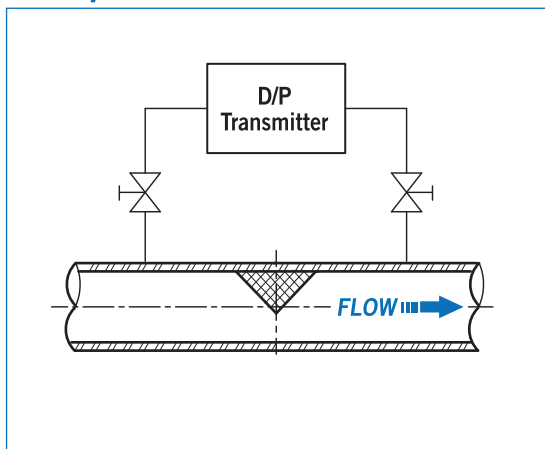
**End Connection:** Flange end, thread end or Weld end available

**Limited Temperature:** Integral Style: max.  $150^\circ\text{C}$ ; Separate Style: max.  $370^\circ\text{C}$

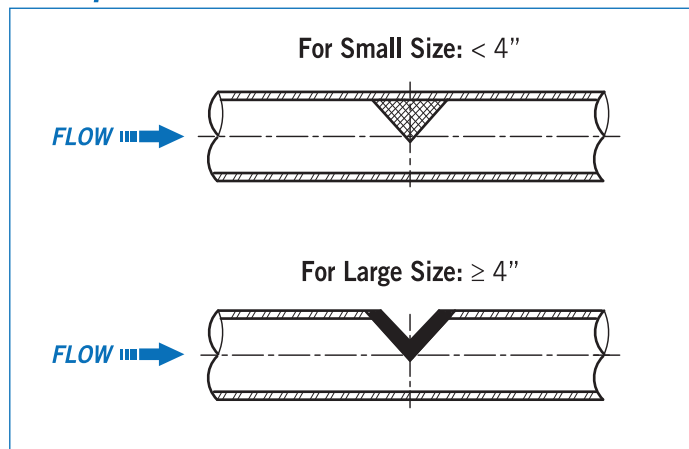
**Limited Pressure:** Integral Style:  $100\text{ kg/cm}^2$ ; Separate Style:  $20\text{ kg/cm}^2$



### Principle



### V-Shaped Throttle



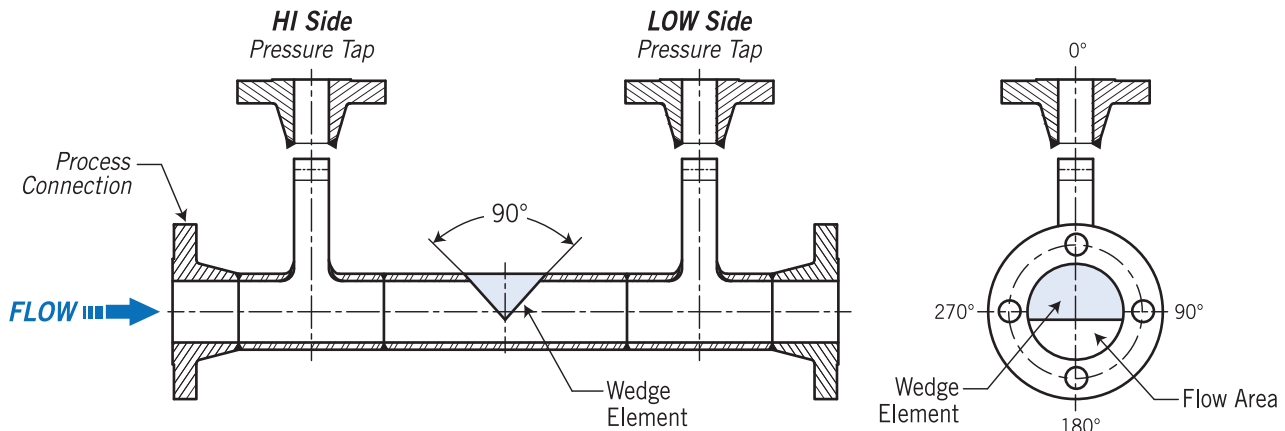
### Length of Straight Pipe

TYPICAL PIPE LENGTH REQUIREMENTS	PREFERRED		MINIMUM	
	Up	Down	Up	Down
Partially Opened Gate Valve	10D	5D	10D	3D
Concentric Inserter	10D	5D	5D	3D
Concentric Reducer	10D	5D	5D	3D
1 Elbow	10D	5D	5D	3D
2 Elbows Close Coupled In-Plane	10D	5D	5D	3D
3 Elbows Close Coupled Out-Of-Plane	10D	5D	10D	3D

## Configuration Type

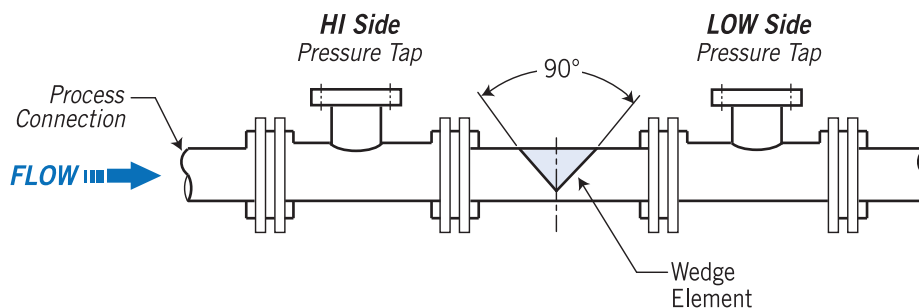
### (A) Fixed Type :

- Service for clean fluid, corrosive and slurry fluid.
- Pressure tap and process connection available for flange or thread type.
- Tees and flanges are “fixed” and unable to take apart for cleaning.



### (B) Separate Type :

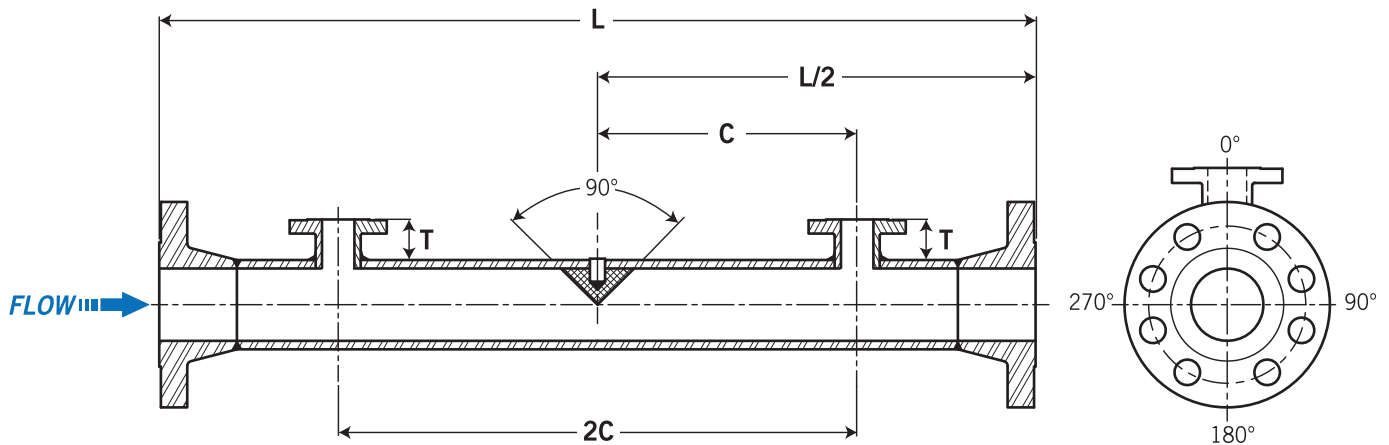
- Service for clean fluid, corrosive and slurry fluid.
- Pressure tap and process connection available for flange or thread type.
- Tees and flanges are “assembled” and able to take apart for cleaning.



## Notice

1. The pressure taps of positive and negative are separately at the each side of wedge plate.
2. Positive tap is to the HI side (upstream); Negative is to the LOW side (downstream).
3. The length of HI side to the wedge plate is equal to the length of LOW side to the wedge plate.
4. To change the flow rate, please replace the measuring tube of throttle. And, if using the diaphragm seal D/P transmitter, it will separate the medium from the piping, so this type is suitable for using to measure in the dirty medium.

## Standard Dimensions

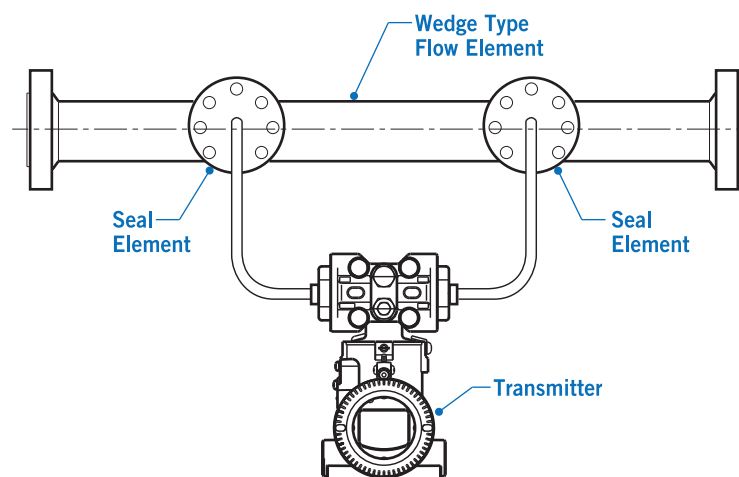


unit=mm

Dimensions Line Size	L			C			T			Approx. Weight		
	150#	300#	600#	150#	300#	600#	150#	300#	600#	150#	300#	600#
1½"	530	543	559	146	146	146	208	214	213	24.9kg	27.7kg	32.2kg
2"	546	559	578	146	146	146	216	222	232	28.1kg	31.8kg	38.1kg
3"	622	641	660	156	156	156	156	167	175	35.4kg	41.7kg	46.3kg
4"	902	921	965	191	191	191	114	125	133	61.2kg	68.0kg	79.4kg
6"	1029	1048	1099	229	229	229	114	125	133	72.6kg	95.3kg	122.5kg
8"	1092	1111	1168	260	260	260	114	125	133	95.3kg	120.2kg	165.6kg
10"	1143	1175	1257	298	298	298	114	125	133	122.5kg	156.5kg	238.1kg
12"	1321	1353	1416	337	337	337	114	125	133	158.8kg	217.7kg	---
14"	1397	1429	1486	356	356	356	114	125	133	185.9kg	276.7kg	---
16"	1473	1511	1588	387	387	387	114	125	133	226.8kg	342.5kg	---
18"	1575	1613	1676	425	425	425	114	125	133	263.1kg	394.6kg	---
20"	1686	1721	1791	470	470	470	114	125	133	317.5kg	498.9kg	---
24"	1854	1886	1969	533	533	533	114	125	133	433.2kg	594.2kg	---

## Installation

- ◆ The wedge type flow element can be installed vertical or horizontal available.
- ◆ The "horizontal installation" as below figure. This enables free passage of liquids, solids and entrained air through the wedge restrictoin - an advantage over conventional orifice plate technology that causes a damming effect, leading to buildup of process material on the measurement face.
- ◆ The "vertical installation" is possible with flow in an upwardds direction. This ensures the meter remains full of fluid at all times during measurement. Materials of construction used for the wedge should match those of the pipeline, for erosion and corrosion compatibility.



## Ordering Data Sheet

Individual Specification		Requirement		Requirement	
<b>GENERAL</b>					
01	Tag No.				
02	P & I.D No.				
03	Service				
04	Line No.				
05	Line Size & Schedule				
06	NACE Requirement				
07	Service Condition Case				
<b>PRIMARY ELEMENT</b>					
08	Sensor Type				
09	Wetted Parts Material				
10	H Dimensions (mm)				
11	H/D Ratio				
12	Body Process Connection (Size Rating)				
13	Body & Flange Material				
14	Pressure Taps Type				
15	Pressure Taps Connection (Size Rating)				
16	Flange Type (Body & Taps)				
<b>METER</b>					
17	Type of Meter				
18	Scale Range				
19	Scale Unit				
<b>FLUID DATA</b>					
20	Fluid				
21	Fluid State				
22	Flow Unit				
23	Maximum Flow for Sizing				
24	Maximum Flow				
25	Normal Flow				
26	Oper. Pressure (Kg/Cm <sup>2</sup> G)				
27	Oper. Temperature (°C)				
28	Sp. Gr. @FTP				
29	Sp. Gr. @Base Condition				
30	Mol. Wt.				
31	Cp / Cv				
32	Oper. Viscosity (Cp)				
33	Oper. Density @FTP (Kg/M <sup>3</sup> )				
34	Steam Superheat (°C)				
35	Max. Allowable DP (Kg/Cm <sup>2</sup> )				
36	Model				

\* Please fill in above block on request.

### Ordering Information

WF	Code	Type
	A	Fixed Type
	B	Seperate Type
	Code	Body Material
	S	SS316
		O Option
	Code	Line Size
		Please directly fill out the request size 1" to 24" (option)
	Code	Process Connection Size
	T	Thread (3) 1" (4) 1½" (5) Option
	F	Flange (8) 1" (9) 1½" (10) 2" (0) Please directly fill out the request size (maximum 24").
	Code	Process Connection Rating
		(1) NPT, female (2) BSP, female (3) ANSI 150#RF (4) ANSI 300#RF (0) option
	Code	Pressure Tap Size
	T	Thread Type: <i>(For Fixed Type only)</i> (1) ½"NPT(F) (2) ¾"NPT(F)
	F	Flange Type: <i>(For both of Fixed Type or Seperate Type)</i> (5) 2" ANSI 150#RF (6) 3" ANSI 150#RF (7) 2" ANSI 300#RF (8) 3" ANSI 300#RF (9) option

WF								<b>Complete Ordering Code</b>
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**Ordering code example:**

**WF-A-S-1"-T(3)-1-T(1)**

- WF = Model
- A = Type: Fixed type
- S = Body Material: SS316
- 1" = Line Size: 1"
- T(3) = Process Connection Size: Thread 1"
- 1 = Process Connection Rating: NPT, female
- T(1) = Pressure Tap Size: Thrad type, ½"NPT(F)