DECON
DECON INDUSTRIES LIMITED
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Registered Quality to ISO 9001

Process Instrumentation
The Netpark Incubator, Thomas Wright Way
Netpark Sedgefield, County Durham, TS21 3FD, UK
Phone: +44 1740 625273 Fax: +44 1740 625251

WEDGE METER

The wedge meter is a differential pressure producing device for use on all fluids especially slurries and liquids with suspended solids. Our wedge meter is particularly effective on viscous fluids.

It is insensitive to pipe Reynolds Numbers which can be as low as 500.

Differential pressure tapping - Flanged or screwed. A remote seal connection is available for DP transmitters. Our wedge meter is suitable for bi-directional flows.

Description

Rugged and robust design.

Low permanent pressure loss.

Pipe Size:50mm to 600mm.

Can be supplied with chemical seals for hazardous applications.

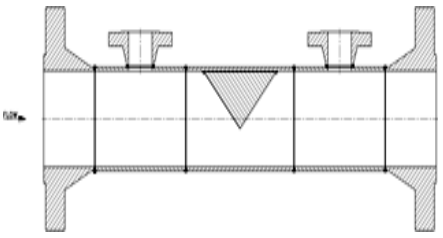
Application

Flow measurement of high viscosity liquids.

Flow metering of low Reynolds number fluids

Flow measurement of slurries and liquids with entrained solids

Bi-directional flow measurement



Benefits

Proven flow metering technology.

Rugged design - will withstand slurries and entrained solids.

Flow measurement with No moving parts.

Negligible wear and erosion therefore require less maintenance and inspection.

Low permanent pressure drop resulting in Energy savings.

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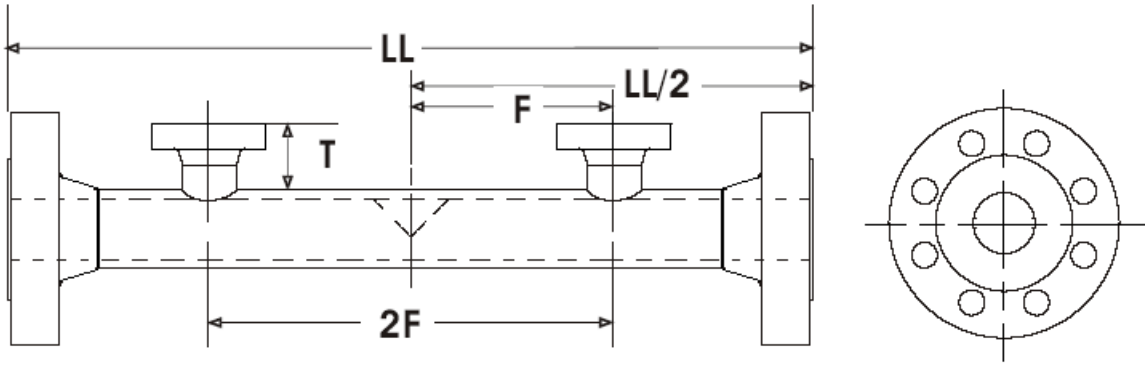
Technical Specifications

In line sizes from 0.5" through 24", the wedge type flow meter is a differential producer design available in the public domain which, when utilized, is generally applied in air entrained liquid, particulate entrained, high viscosity or slurry type, most frequently described as difficult to-meter line fluids. abrasive or fibrous slurry are examples of possible applications, relatively low pipe Reynolds numbers can be addressed with some accuracy and the discharge coefficient is stable through the application range.

Though accuracy, reliability and head loss characteristics are inferior to that obtained with venturi tube product lines, if highly viscous, particulate laden flows along with low acquisition cost is of highest priority to the exclusion of the other factors, DECON wedge type flow meter can be a metering option worth consideration.
When your application requirements dictate the use of DECON wedge type flow meters, can provide expert technical assistance estimating bore size, differentials and flow rates coupled with high quality.

The operating principal of the DECON wedge flow meter is analogous to that of other differential producing flow meters such as orifice plates or venturi meters in the respect that the pressure difference measured across a flow constriction in this case a sloping "wedge" is related to the velocity of the flow passing through the narrowest cross section of the flow element.
Pressure taps are located up stream and downstream from a "v"(Called "Wedge") shaped constriction placed in a length of pipe. The constriction creates a pressure drop between the upstream tap and downstream tap which is related to the velocity in the pipe line, and thus, inferentially, to the volumetric flow rate through the narrowest cross section of the flow element thereby created.
The opening height of the wedge can be changed in design according to the amount of differential required for a particular application flow range modified by the tolerance for permanent pressure loss.



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Standard Dimensions

Line Size inches	Dimension LL			Dimension F			Dimension T			Approx. Weight (Lbs)		
	150	300	600	150	300	600	150	300	600	150	300	600
1 - 1/2	20.86	21.37	22.00	5.75	5.75	5.75	8.18**	8.43**	8.37**	55	61	71
2.0	21.50	22.00	22.75	5.75	5.75	5.75	8.50**	8.75**	9.12**	62	70	84
3.0	24.50	25.25	26.00	6.13	6.13	6.13	6.13**	6.56**	6.88**	78	92	102
4.0	35.50	36.25	38.00	7.50	7.50	7.50	4.50	4.93	5.25	135	150	175
6.0	40.50	41.25	43.25	9.00	9.00	9.00	4.50	4.93	5.25	160	210	270
8.0	43.00	43.75	46.00	10.25	10.25	10.25	4.50	4.93	5.25	210	265	365

Line Size inches	Dimension LL			Dimension F			Dimension T			Approx. Weight (Lbs)		
	150	300	600	150	300	600	150	300	600	150	300	600
10.0	45.00	46.25	49.50	11.75	11.75	11.75	4.50	4.93	5.25	270	345	525
12.0	52.00	53.25	55.75	13.25	13.25	13.25	4.50	4.93	5.25	350	480	
14.0	55.00	56.25	58.50	14.00	14.00	14.00	4.50	4.93	5.25	410	610	
16.0	58.00	59.50	62.50	15.25	15.25	15.25	4.50	4.93	5.25	500	755	
18.0	62.00	63.50	66.00	16.75	16.75	16.75	4.50	4.93	5.25	580	870	
20.0	66.37	67.75	70.50	18.50	18.50	18.50	4.50	4.93	5.25	700	1100	
24.0	73.00	74.25	77.50	21.00	21.00	21.00	4.50	4.93	5.25	955	1310	

General Specifications

Transitter connections:

Female threaded 1/2"NPT or 2" flanges

Pressure rating: 150 Psi to 2500 Psi

Process connections:
ANSI B16.5, Class 150 lbs to 2500 lbs
Seal face: RF or RJ

Material: Stainless Steel 304, 316, 321, 347, Carbon Steel, Hastelloy C or Monel, Other material available on request.

Accuracy: +/- 2.0% of Reading w/bench testing
+/- 0.5% of Reading after real flow calibration.

Max. pressure and temperature: Per ANSI B16.5 and dependent on wetted parts materil and gasket material.

Installation: Proper operation of DECON Wedge Flow Meter is dependent upon orientation and upstream and down stream pipe run.

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Installation information Requirements

The proper operation of the DECON wedge flow element is relatively forgiving of the specific installation arrangement imposed.

Nevertheless, to achieve the best results, the recommended installation guidance below should be observed and incorporated.

The adverse results arising from failure to properly install the flow element can include plugging of impulse lines and/or tap holes, air (gas or unwanted second phase) entrapment in the taps and/or impulse lines, introduction of a minor hydrostatic head effect (in a vertically orientated installation) or Kd^2 shift (i.e. accuracy) impairment.

Meter orientation A horizontal orientation is preferred and typical for most installations.

Orientations Requirements
The meters can be rotated 45^o to 90^o resulting the tap locations that substantially allow any un-dissolved solids to easily pass beneath the wedge without build-up and also minimizes air (or gas) entrapment at tap locations.
Vertical installs may result in a hydrostatic head effect due to the elevation difference of the individual impulse lines. this can be corrected by adjusting the transmitter.
Other orientations and installations are permissible, providing adequate consideration and accommodation is made by virtue of proper venting and compensation for relative differences in impulse/tap elevations.

Straight pipe-run requirement
The DECON wedge type flow element will produce the performance profiled subject to the process piping.
As most flow meters, straight (unrestricted) pipe-run upstream and downstream of the flow element is preferred and will produce better results and accuracy. Provide adequate straight piping upstream and downstream, can significantly normalize the accuracy, despite the present disturbers. General guidance is offered below with all dimensions provided being considered from the apex of the wedge element.

Upstream Disturber	Preferred		Minimum	
Partially Opened Gate Valve	10 Dia.	5 Dia.	10 Dia.	3 Di
Concentric Increaser	10 Dia.	5 Dia.	5 Dia.	3 Di
Concentric Reducer	10 Dia.	5 Dia.	5 Dia.	3 Di
1 Elbow	10 Dia.	5 Dia.	5 Dia.	3 Di
2 Elbows Close Coupled in Plane	10 Dia.	5 Dia.	5 Dia.	3 Di
2 Elbows Close Coupled out of Plane	10 Dia.	5 Dia.	10 Dia.	3 Di