DECON
DECON INDUSTRIES LIMITED
WWW.DECONUK.COM
Registered Quality to ISO 9001

Process Instrumentation
The Netpark Incubator, Thomas Wright Way
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DECON Rectangular Flow Meter

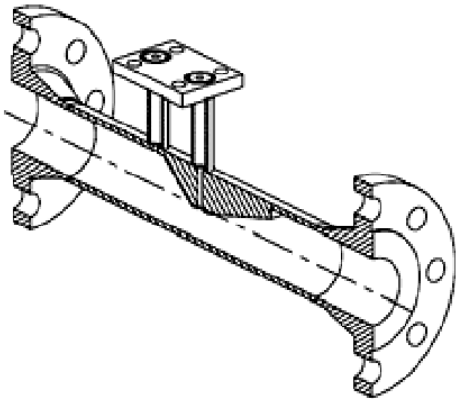
The Rectangular Flow Meter is actually a Wedge type Venturi, is a differential pressure generating device for use on all fluids especially slurries and liquids with suspended solids. Our rectangular meter is particularly effective on fluids with low Reynolds.

It is insensitive to pipe Reynold Numbers which can be as low as 1000 for viscous fluid, 6500 for gas and light liquids.

Both rectangular pipe and circular pipe for this kind of flow meter can be available, rectangular pipe rating CL150# - 600#, circular pipe rating CL150#-2500#.

Features

1. Rugged and robust design.
2. Low permanent pressure loss: 15%DP -25%DP
3. Accuracy: ±0.5% to ±0.25%
4. Wide turn-down ratio: 100:1
5. Short pipe run needed:
   Up-stream 1.5D – 4D, Downstream: not needed
6. Pipe Size: 40mm to 600mm.
7. Pressure Rating: CL150#-2500#
8. Equivalent: β=0.25 – 0.8
9. Can be supplied with chemical seals for hazardous application or Hardened throttling throat for abrasion fluids.



Applications

1. High accurate flow metering of Clean liquids and gases
2. Flow measurement of high viscosity liquids.
3. Flow metering of low Reynolds number fluids
4. Flow measurement of slurries and liquids with entrained solids

Benefits

1. Proven flow metering technology.
2. Rugged design - will withstand slurries and entrained solids.
3. Flow measurement with No moving parts.
4. Negligible wear and erosion therefore require less maintenance and inspection.
5. Low permanent pressure drop resulting in Energy savings.
6. High accurate and good repeatability.

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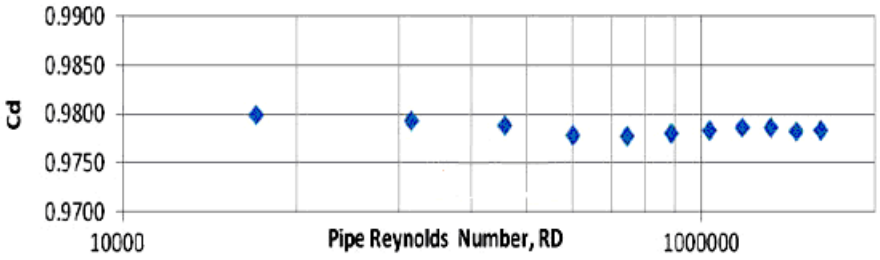
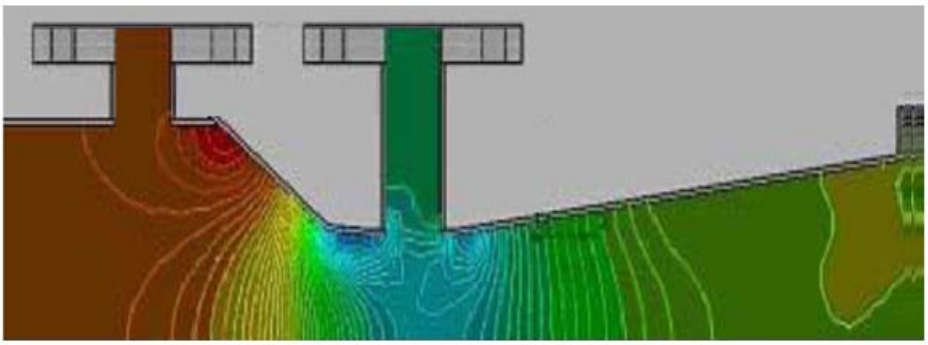
Technical Specifications

In line sizes from 0.5" through 24", the Rectangular flow meter is a differential producer design available in the public domain which, when utilized, is generally applied for liquids and gases, and have good properties in air entrained liquid, particulate entrained, high viscosity or slurry liquid, 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.

This kind of flow meters combined the both properties of venturi and wedge meters, with high accuracy, reliability and lower head loss characteristics that obtained with venturi meter product lines, and the abilities for measuring highly viscous, particulate laden flows along with wedge meters, is of highest priority to the exclusion of the other factors, DECON rectangular type flow meter can be a reliable metering option worth consideration with high accuracy, low permanent head loss and wide range-ability.



Good Linearity and high accurate



Retangular Meter, or Wedge-type Venturi Meter
combines both properties of venturi and wedge meters

When your application requirements dictate the use of DECON Rectangular type flow meters, DECON can provide expert technical assistance for calculating bore size, differential pressure and flow rates coupled with high quality.

The operating principal of the DECON rectum flow meter is analogous to that of other differential producing flow meters such as orifice plates in the respect that the pressure difference measured across a flow constriction, in this case a sloping "rectangular restricting piece" is related to the velocity of the flow passing through the narrowest cross section of the flow element.
Positive Pressure tap is located up stream from a Rectangular Piece (Called "Rectum Throttling

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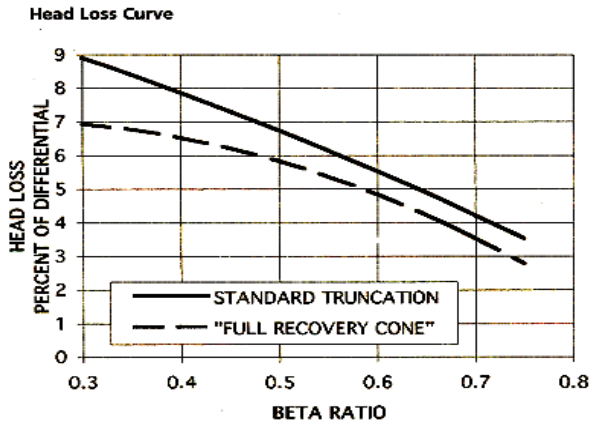
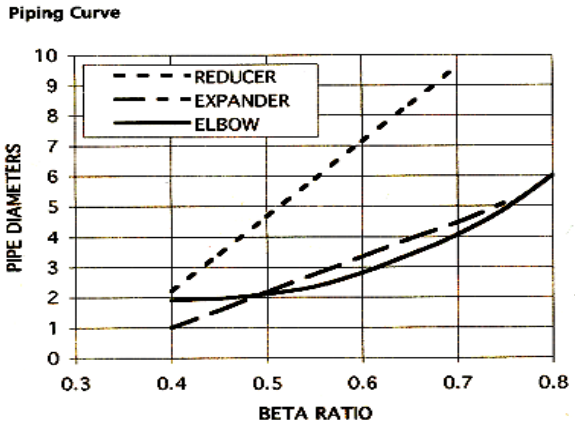
Element") constriction placed in a length of pipe and the Negative Pressure tap is located right on the throat of the Throttling Piece. The throat constriction creates a pressure drop between the upstream tap and throat tap which is related to the velocity in the pipe line, and thus, inferentially, to the volumetric flow rate through the narrowest cross section of the rectum flow element thereby created.

The opening height of the rectum throat 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.

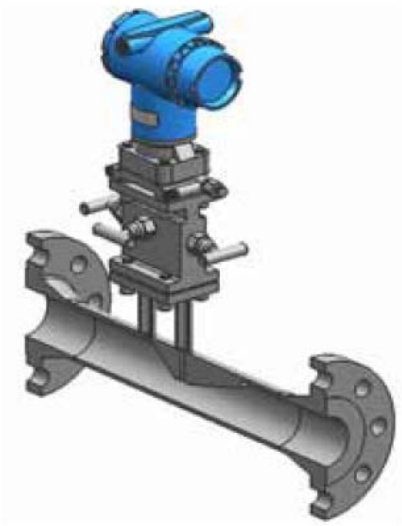




Integrated Mass Flow Transmitter

DECON can provide the Integral Mass Flow Metering System. This is a fully integral, high accuracy, wide flow range, rectangular throttling based mass flow metering system that provides a single unit that includes the flow primary, instrument manifold, and secondary instrumentation together with pressure / temperature compensation.

Direct mounted on the primary flow element is the Instrument manifold, the secondary instrumentation (DP Transmitter), thermo-well and temperature probe, fully assembled and calibrated to your application and installation requirements.
This technology is useful in numerous applications including industrial process metering and control, oil & gas, and Coal Bed Methane, and CO_2 injection.



The rectangular flow primary provides a reliable and accurate metering capability down to 6000 ReD *(pipe Reynold number)*, a linear Coefficient of Discharge throughout the entire flow range, standard accuracy of +/-0.50% and calibrated accuracy of +/-0.25% or better.

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Installations

The proper operation of the Rectangular 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 impairment.

Meter orientation: A horizontal orientation is preferred and typically for most installations.

The DECON Rectangular flow element will produce the performance profiled subject to the process piping.

As most flow meters, straight (unrestricted) pipe-run upstream of the flow element is preferred and will produce better results and accuracy. Provide adequate straight piping upstream can significantly normalize the accuracy, despite the presence of disturbers.

General guidance is offered in table below with all dimensions provided being considered from the apex of the rectangular element.

Minimum Upstream Pipe Run Requirements

Equivalent Beta Ratio	Single 90° Elbow		2 or more 90°elbow at one plane		2 or more 90°elbow at multi-plane		3DxD Reducer In 3.5D length Of pipe		3/4DXD Expand In 1D length Of pipe		Full Open Ball Valve Or Gate valve	
—	A[a]	B[b]	A[a]	B[b]	A[a]	B[b]	A[a]	B[b]	A[a]	B[b]	A[a]	B[b]
0.30	2.0	1.5	2.5	2.0	3.0	2.5	1.0	c	1.5	c	1.5	c
0.40	2.5	1.5	2.5	2.0	3.0	2.5	1.0	c	2.5	c	1.5	c
0.50	3.0	2.5	4.0	2.5	4.0	3.0	2.5	1.5	3.5	1.0	2.5	1.0
0.60	4.0	2.5	4.0	3.5	4.5	4.0	4.0	2.5	4.5	1.5	3.5	2.5
0.70	5.0	4.0	**5**.0	4.0	6.0	6.0	4.0	4.0	5.5	3.0	4.0	4.0
0.75	6.0	4.0	6.0	6.0	10.0	8.0	4.0	4.0	**6**.0	4.0	4.0	4.0
0.80	6.0	4.0	6.0	6.0	10.0	8.0	4.0	4.0	**6**.0	4.0	4.0	4.0

1. The Minimum pipe run requirements indicated in times of process pipe diameter.
2. Upstream pipe run counting from upstream tap， pipe inner coarse $K/D \leq 10^{-3}$.
3. The radius of curvature of the bend shall be greater than or equal to the pipe diameter.
   a. Column A for each fitting gives lengths corresponding to “zero additional uncertainty” values.
   b. Column B for each fitting gives lengths corresponding to “0.5 % additional uncertainty” values.
   c. The straight length in Column A gives zero additional uncertainty; data are not available for shorter straight lengths which could be used to give the required straight lengths for Column B.

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Rectangular Meter (Wedge Type Venturi)

Model Selection Code

DEC -RF- A – B - C - D – E - F – G

A------ flow meter sizes 01-----2”
02-----3”
03-----4”
04-----6”
05-----8”
06-----10”
07-----12”
08-----14”
09-----16”
10-----18”
11-----20”
12-----24”
13-----other

B---pressure rating: 01-----150#
02-----300#
03-----600#
04-----900#
05-----1500#
06-----2500#

C------ range ability 01-----10:1
02-----30:1
03-----100:1

D-----Pipe Material: 01-----CS
02-----304SS/l
03-----316SS/L
04-----other

E-- Element Material 01-----CS
02-----304SS/L
03-----316SS/L
04-----other

F----Process connection
01-----NPT
02-----flange
03-----weld
04-----other

G------ Calibration: 01----- Water
02----- Air
03-Uncalibration
04-----other

Welcome to DECON INDUSTRIES LIMITED

DECON specialized in custom-engineering components used in pipeline systems for water treatment, petrochemical, pharmaceutical, Coal chemical, Power and smelter industries.

Each of our products was designed to solve a problem for our customers and to perform better than competitive products.

Our products can be fabricated in a variety of materials and specifications to meet your needs.