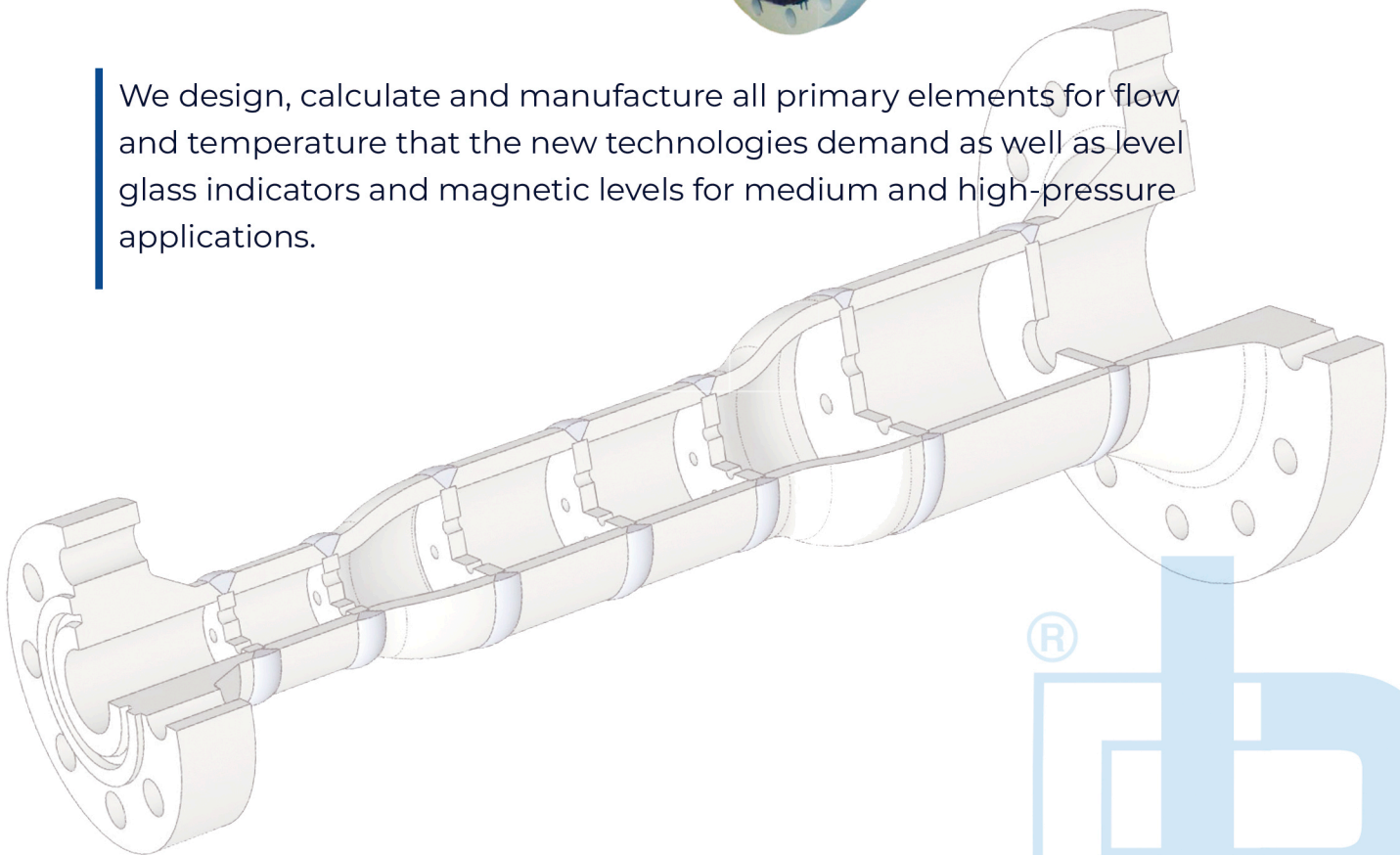


We design, calculate and manufacture all primary elements for flow and temperature that the new technologies demand as well as level glass indicators and magnetic levels for medium and high-pressure applications.



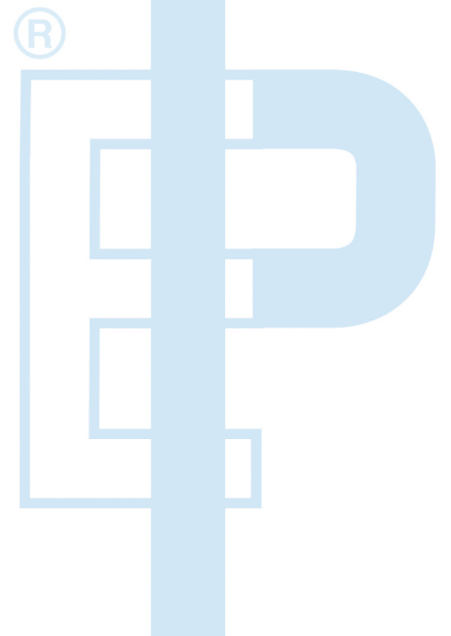
Century XXI



Made in Spain



Nº: ISO 9001 - 0037273



FLOW

Differential pressure flow measurement is widely used due to its excellent relationship between installation-maintenance costs, and benefits. The new designs of differential pressure transmitters, more and more precise and some of them will be able to integrate a greater number of process variables, ratify the validity of these types of meters.

Content

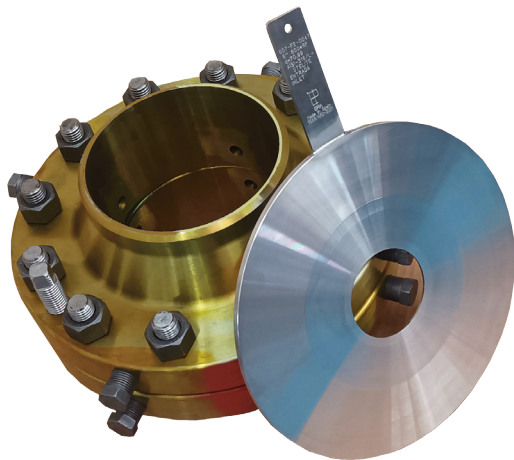
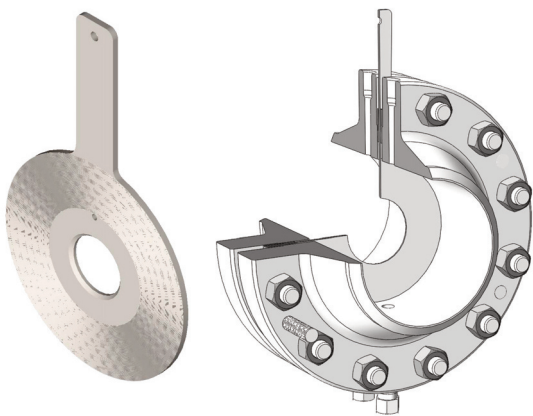
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FLOW

Orifice flanges and plates (square-edge)

DESCRIPTION: Differential pressure flow measurement is widely used to its excellent relationship between installation cost, maintenance and performance. The new designs of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, ratify the versatility, reliability and validity of this primary elements.

Square-edge orifice plates are used for flow measurement in clean liquids, gases and steam with low pressure.



APPLICATIONS

- Flow measurement in liquids, gases and low-pressure steam.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

- Calculation standards:	ISO 5167-6, AGA, ASME FLUID METER and any other required
- Materials:	Carbon steels, low alloys and steel alloys (orifice flanges). Stainless steel and high alloys (orifice plates).
- Size of Manufacture:	2" - 60"
- Flange finishes:	RF, FF, RTJ.

SPECIFICATIONS

- Beta:	0.1 - 0.75
- Reynolds:	≥ 5000 y $\geq 170\beta^2 D$
- Accuracy:	1 - 2%

NOTES

- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.

FLOW

Orifice flanges and plates (conical and quarter circle)

DESCRIPTION: Differential pressure flow measurement is widely used to its excellent relationship between installation cost, maintenance and performance. The new designs of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, ratify the versatility, reliability and validity of this primary elements. Conical and quarter circle plates are used for very viscous flows with low Reynolds numbers.



APPLICATIONS

- Flow measurement in highly viscous fluids with low Reynolds number.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

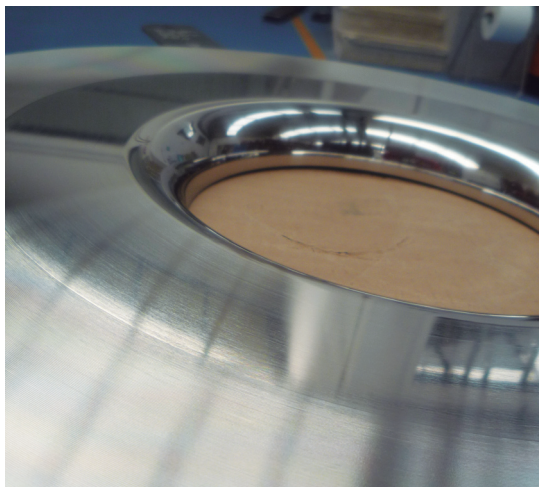
- Calculation standards:	ISO/TR 15377, ASME FLUID METER
- Materials:	Carbon steels, low alloys and steel alloys (orifice flanges). Stainless steel and high alloys (orifice plates).
- Size of Manufacture:	≤20"
- Flange finishes:	RF, FF, RTJ.

SPECIFICATIONS

- Beta:	Conical: 0.1 - 0.316 Quarter Circle: 0.245 - 0.6
- Reynolds:	Conical: $80 - 2 \times 10^5 \beta$ Quarter Circle: $f(\beta) \leq Re_D \leq 10^5 \beta$
- Accuracy:	1 - 2%

NOTES

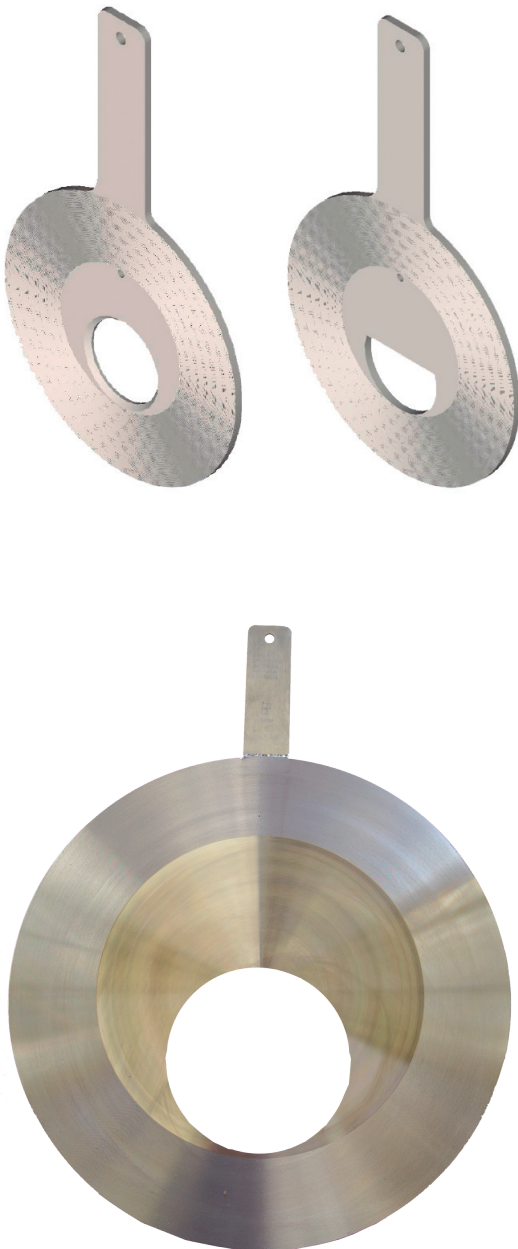
- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.



FLOW

Orifice flanges and plates (eccentric and segmental)

DESCRIPTION: Differential pressure flow measurement is widely used to its excellent relationship between installation cost, maintenance and performance. The new designs of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, ratify the versatility, reliability and validity of this primary elements. Eccentric and segmental orifice plates are used for fluids that are dirty and contain sediments.



APPLICATIONS

- Flow measurement in highly viscous fluids with low Reynolds number.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

- Calculation standards:	ISO / TR 15377 ASME FLUID METER
- Materials:	Carbon steels, low alloys and steel alloys (orifice flanges). Stainless steel and high alloys (orifice plates).
- Size of Manufacture:	Eccentric: 4" - 40" Segmental: $\geq 4"$
- Flange finishes:	RF, FF, RTJ.

SPECIFICATIONS

- Beta:	Eccentric: 0.46 - 0.84 Segmental: 0.35 - 0.8
- Reynolds:	$2 \times 10^5 \beta^2 - 1 \times 10^6 \beta$
- Accuracy:	1 - 2%

NOTES

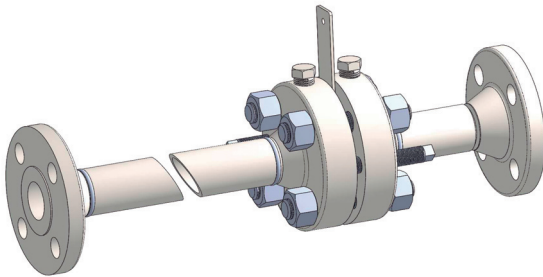
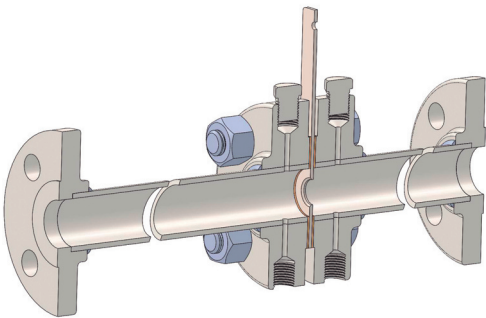
- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.



FLOW

Meter-run

DESCRIPTION: Using the orifice plate as a flow measurement device, this design is used in line sizes smaller than 2" (DN50), or larger sizes where great measurement accuracy is required. The new designs of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, confirm the validity of this type of meter. It is a flanged orifice plate and calibrated inlet and outlet pipe sections.



APPLICATIONS

- Flow measurement in liquids and gases.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

- Calculation standards:	ASME MFC-14M, ISO TR15377
- Materials:	Carbon steels, low alloys and steel alloys (orifice flanges and pipe). Stainless steel and high alloys (orifice plates).
- Size of Manufacture:	½" - 1 ½" (Larger sizes on request).
- Flange finishes:	RF, FF, RTJ.

SPECIFICATIONS

- Pressure taps	Corner taps. Flange taps.
- Beta:	Corner taps: 0.1 - 0.8 Flange taps: 0.15 - 0.7
- Reynolds:	≥1000
- Accuracy:	1%

NOTES

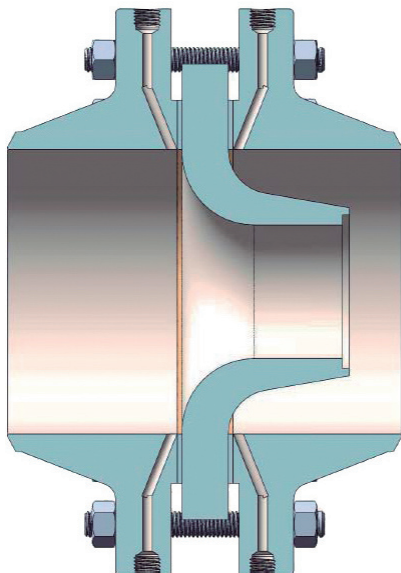
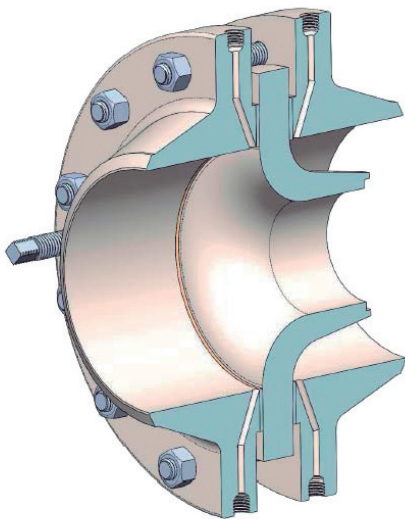
- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.



FLOW

Flow Nozzle (ISA 1932)

DESCRIPTION: This flow measurement device has a more robust design than the orifice plate and with an elliptical profile, which makes it used in water vapor measurements, in processes with high fluid speed or for performance evaluations of complete units. The new designs of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, confirm the validity of this type of meter.



APPLICATIONS

- Flow measurement in liquids, gases and high-pressure steam
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

- Calculation standards:	ISO 5167-3 ASME MCF-3M
- Materials:	Carbon steels, low alloys and steel alloys (flanges). Stainless steel and high alloys (Nozzle).
- Size of Manufacture:	2" - 20"
- Flange finishes:	RF, FF, RTJ.

SPECIFICATIONS

- Beta:	0.3 - 0.8
- Reynolds:	$7 \times 10^4 - 10^7$ ($0.3 \leq \beta < 0.44$) $2 \times 10^4 - 10^7$ ($0.44 \leq \beta \leq 0.8$)
- Accuracy:	1 - 2%

NOTES

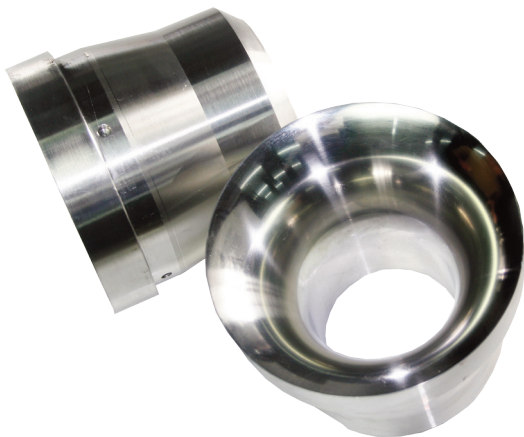
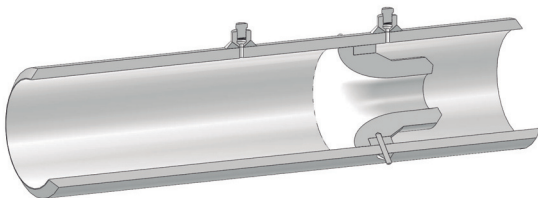
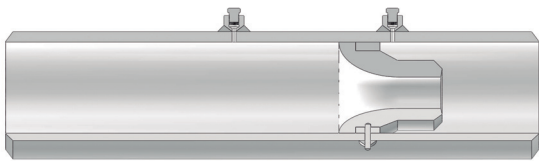
- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.



FLOW

Flow Nozzle (inserted in pipe) LONG RADIUS

DESCRIPTION: This flow measurement device has a more robust design than the orifice plate and with an elliptical profile, which makes it used in water vapor measurements, in processes with high fluid speed or for performance evaluations of complete units. The new designs of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, confirm the validity of this type of meter.



APPLICATIONS

- Flow measurement in liquids, gases and high-pressure steam.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

- Calculation standards:	ISO 5167-3 ASME MCF-3M ASME PTC-19.5
- Materials:	Carbon steels, low alloys and steel alloys (flanges and pipes). Stainless steel and high alloys (Nozzle).
- Size of Manufacture:	2" - 24"
- Flange finishes:	Butt weld, flanged (RF, FF, RTJ).

SPECIFICATIONS

- Beta:	0.2 - 0.8
- Reynolds:	10^4 - 10^7
- Accuracy:	2%

NOTES

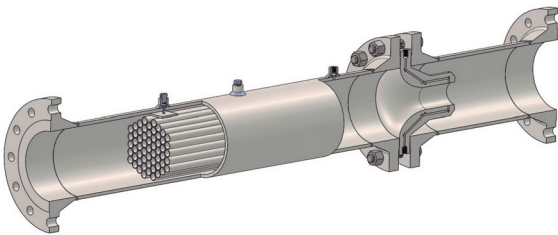
- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.



FLOW

Flow Nozzle ASME PTC-6

DESCRIPTION: This flow measurement device has a more robust design than the orifice plate and with an elliptical profile, which makes it used in water vapor measurements, in processes with high fluid speed or for performance evaluations of complete units. The new designs of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, confirm the validity of this type of meter. They are required under calibration.



APPLICATIONS

- Flow measurement in liquids, gases and high-pressure steam.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

- Calculation standards:	ASME PTC-6
- Materials:	Carbon steels, low alloys and steel alloys (flanges and pipes). Stainless steel and high alloys (Nozzle).
- Size of Manufacture:	4" - 24"
- Flange finishes:	RF, FF, RTJ.

SPECIFICATIONS

- Beta:	0.25 - 0.5
- Reynolds:	1x10 ⁴ - 1x10 ⁷
- Accuracy:	0.25% (calibrated).

NOTES

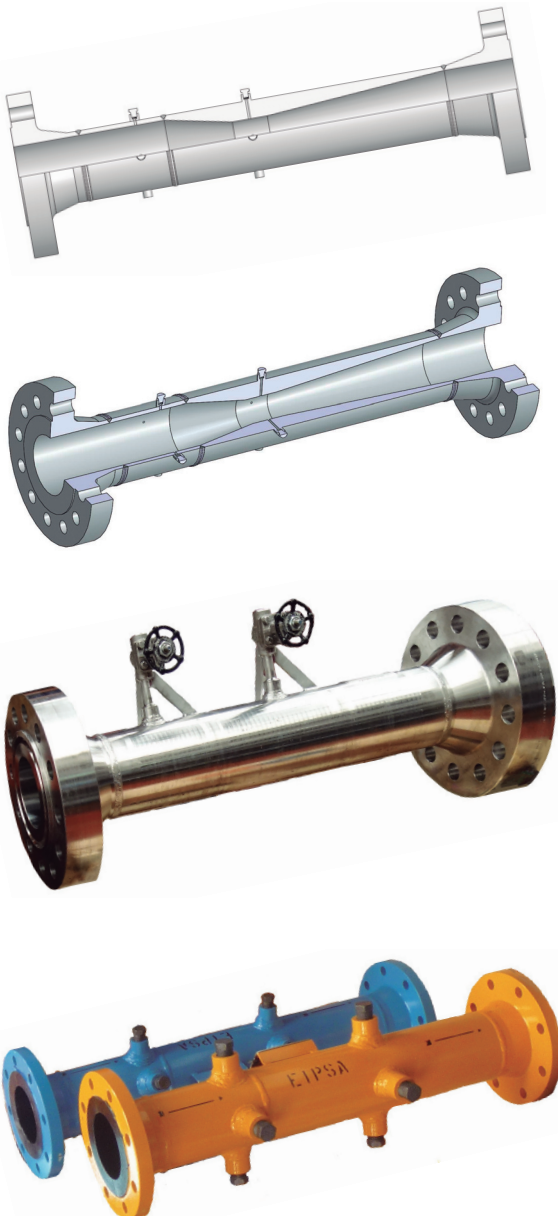
- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.



FLOW

Venturi (machined)

DESCRIPTION: This design is normally used in applications where a minimum permanent load loss of the equipment is required, varying this depending on the angle of the outlet cone of this primary element. The new designs of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, confirm the validity of this type of meter.



APPLICATIONS

- Flow measurement in gases and liquids with suspended solids or mud.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

- Calculation standards:	ISO 5167-4 / AGA ASME MFC-3M
- Materials:	Carbon steels, low alloys and steel alloys. Stainless Steel and high alloys.
- Size of Manufacture:	2" - 10"
- Flange finishes:	Butt weld, flanged (RF, FF, RTJ).

SPECIFICATIONS

- Beta:	0.4-0.75 (ISO) / 0.3-0.75 (ASME)
- Reynolds:	2x10 ⁵ -1x10 ⁶ (ISO) / 2x10 ⁵ -2x10 ⁶ (ASME)
- Accuracy:	1% (ISO) / 1% (ASME)

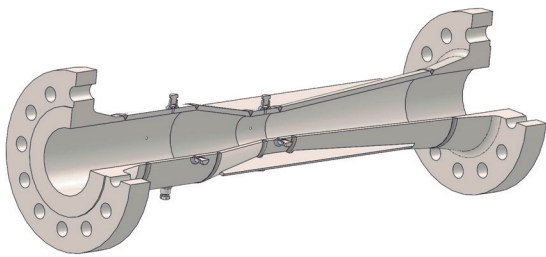
NOTES

- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.

FLOW

Venturi (welded sheet plate)

DESCRIPTION: This design is normally used in applications where a minimum permanent load loss of the equipment is required, varying this depending on the angle of the outlet cone of this primary element. The new designs of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, confirm the validity of this type of meter.



APPLICATIONS

- Flow measurement in gases and liquids with suspended solids or mud.
- For all types of industrial plants such as:
 - Energy generation
 - Chemical and petrochemical industries.
 - Renewable energy
 - Food industry
 - Water treatment

DESIGN

- Calculation standards:	ISO 5167-4 / AGA ASME MFC-3M
- Materials:	Carbon steels, low alloys and steel alloys. Stainless Steel and high alloys.
- Size of Manufacture:	8" - 48"
- Flange finishes:	Butt weld, Flanged (RF, FF, RTJ).

SPECIFICATIONS

- Beta:	0.4-0.7 (ISO) / 0.3-0.75 (ASME)
- Reynolds:	2x10 ⁵ -2x10 ⁶ (ISO) / 2x10 ⁵ -6x10 ⁶ (ASME)
- Accuracy:	1.5% (ISO) / 1.5% (ASME)

NOTES

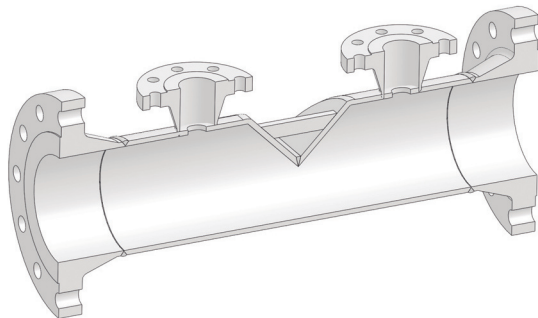
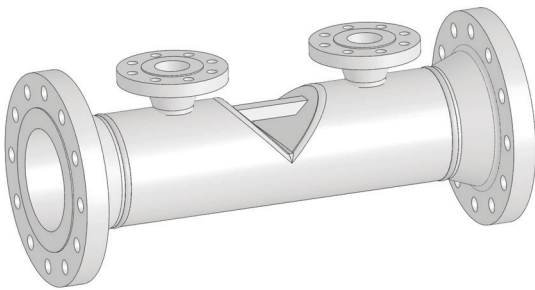
- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.

FLOW

WEDGE-METER

DESCRIPTION: There are many types of geometries through which different fluids are drawn to generate a pressure differential. The most common geometry is circular. Others include the annular or the wedge or segmental type. In these latter geometries the flow lines are not concentric but are forced out of the equipment.

The incoming velocity profile will therefore have an effect on the pressure differential produced and the resulting Reynolds number discharge coefficient. The new designs of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, confirm the validity of this type of meter.



APPLICATIONS

- Flow measurement in liquids, gases and low-pressure steam.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy
 - Food industry
 - Water treatment

DESIGN

- Calculation standards:	ISO 5167-6
- Materials:	Carbon steels, low alloys and steel alloys. Stainless steel and high alloys.
- Size of Manufacture:	2" - 24"
- Flange finishes:	Butt weld, flanged (RF, FF, RTJ).

SPECIFICATIONS

- Beta:	$0,377 \leq \beta \leq 0,791$
- Reynolds:	$1 \times 10^4 \leq Re_D \leq 9 \times 10^6$
- Accuracy:	1 - 2% (calibrated)

NOTES

- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.



FLOW

Pitot Flow - Tek-masico

DESCRIPTION: Fixed geometry differential pressure gauge combined with temperature measurement, thanks to the new multivariable transmitters, mass flow measurement without the need for independent inserts. It produces a very low pressure drop and it is possible to install it in large pipes.

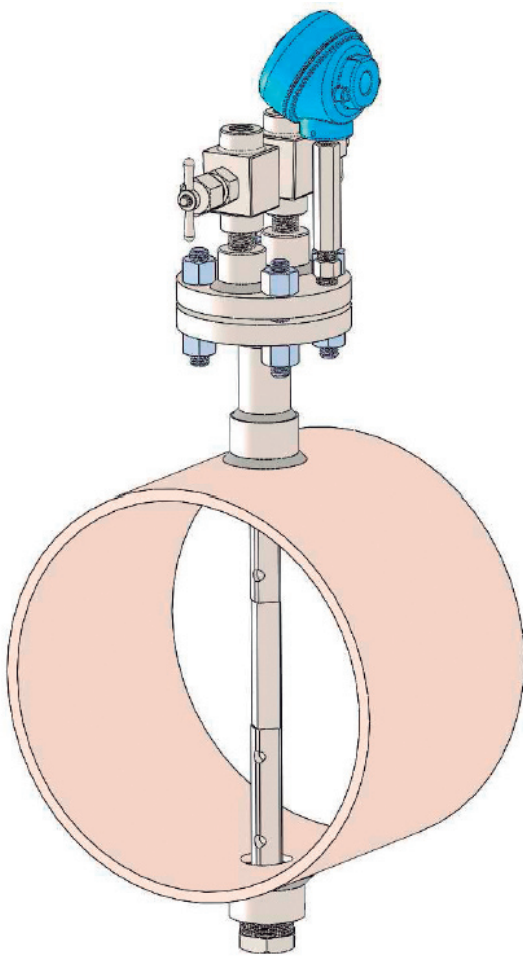


Fig. 1. Removable option.

APPLICATIONS

- Flow measurement in liquids and gases, clean.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

- Calculation standards:	ASME MFC-12M Flowtech Model Miller Engineering Handbook.
- Materials:	Stainless steel and special alloys (on request).
- Size of Manufacture:	1/2" - 72"
- Flange finishes:	RF, FF, RTJ.

SPECIFICATIONS

- Beta:	-
- Reynolds:	>200.000
- Accuracy:	1 - 2%

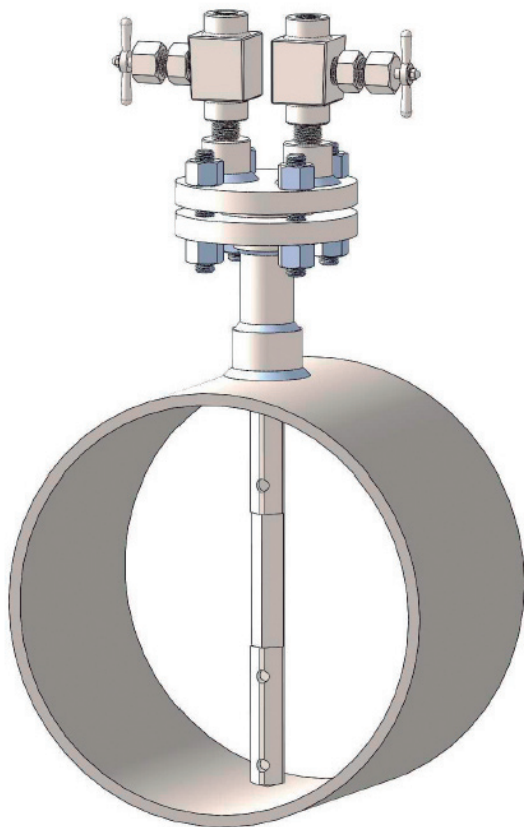
NOTES

- **Removable option.**
- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.

FLOW

Pitot Tube

DESCRIPTION: Fixed geometry differential pressure meter. It allows measurement with very low pressure drop and it is possible to install it in large pipes. The new designs of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, ratify the validity of this type of meters.



APPLICATIONS

- Measurement in gases and liquids and corrosive environments.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy
 - Food industry
 - Water treatment

DESIGN

- Calculation standards:	Flowtech Model Miller Engineering Handbook ASME MFC-12M
- Materials:	Stainless steel and special alloys (on request).
- Size of Manufacture:	1/2" - 72"
- Flange finishes:	RF, FF, RTJ.

SPECIFICATIONS

- Beta:	-
- Reynolds:	>10.000
- Accuracy:	1 - 2%

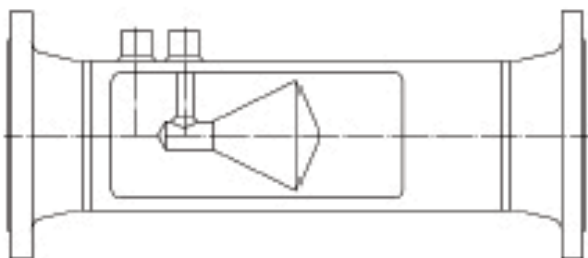
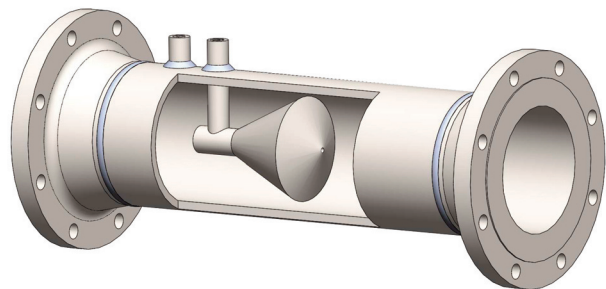
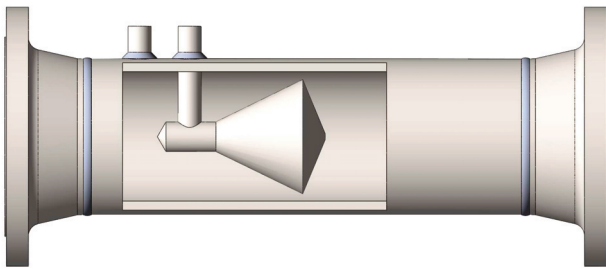
NOTES

- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.

FLOW

V-Cone

DESCRIPTION: Fixed geometry differential pressure gauge that allows a very low pressure drop to be obtained. It is used when the minimum upstream and downstream straight lengths are required and when high turndown is available. The new designs of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, confirm the validity of this type of meter.



APPLICATIONS

- Measurement in gases and liquids with particles.
- Viscous and corrosive fluids.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

- Calculation standards:	ISO 5167-5
- Materials:	Low alloy, stainless steel and high alloys.
- Size of Manufacture:	2" - 20"
- Flange finishes:	RF, FF, RTJ.

SPECIFICATIONS

- Beta:	0.45 – 0.75
- Reynolds:	$8 \times 10^4 - 1.2 \times 10^7$
- Accuracy:	5%

NOTES

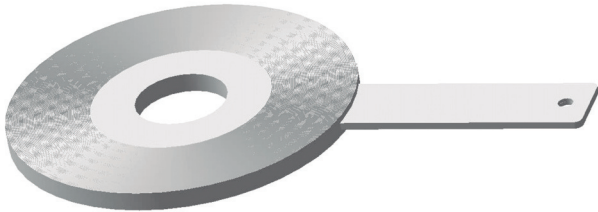
- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.



FLOW

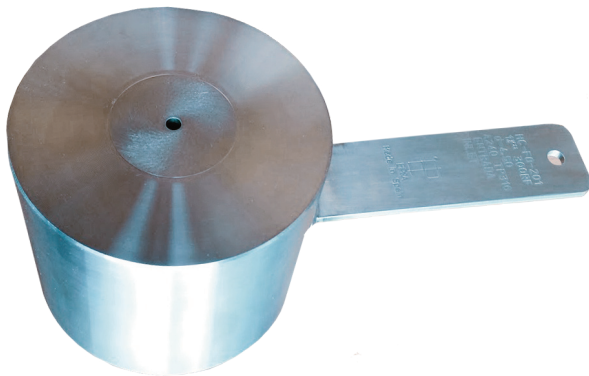
Restriction orifice

DESCRIPTION: This device is used to limit the flow in a pipe or to create permanent head loss. They can be built as standard thickness holes, oversized (Thick) or multi-hole.



APPLICATIONS

- Depressurizations for gas and liquids.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.



DESIGN

- Calculation standards:	ISO 5167-2. ASME MFC-3M Engineering Handbook
- Materials:	Stainless Steel and high alloys (other materials on request).
- Size of Manufacture:	½" – 40"
- Flange finishes:	RF, FF, RTJ.



SPECIFICATIONS

- Beta:	-
- Reynolds:	-
- Accuracy:	2%

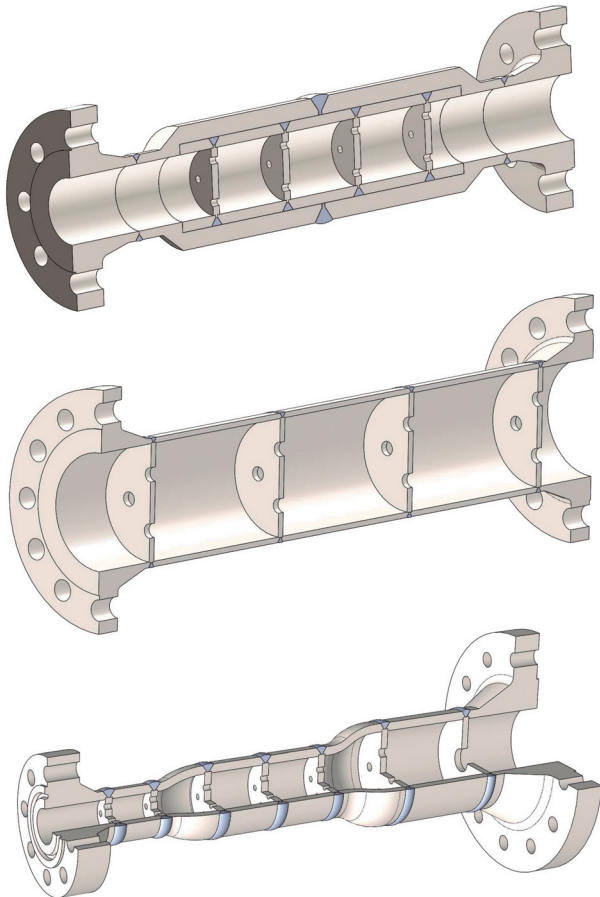
NOTES

- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.

FLOW

Multistage restriction orifice

DESCRIPTION: This device is used to limit the flow in a pipe or to create permanent head loss. They can be manufactured with flanges, with ends to be welded to the pipe or with section changes.



APPLICATIONS

- Depressurizations for gas and liquids.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

- Calculation standards:	ISO 5167-2. ASME MFC-3M Engineering Handbook
- Materials:	Carbon steel, stainless steel, and high alloys.
- Size of Manufacture:	½" – 40"
- Flange finishes:	Butt weld, flanged RF, FF, RTJ.

SPECIFICATIONS

- Beta:	-
- Reynolds:	-
- Accuracy:	2-5%

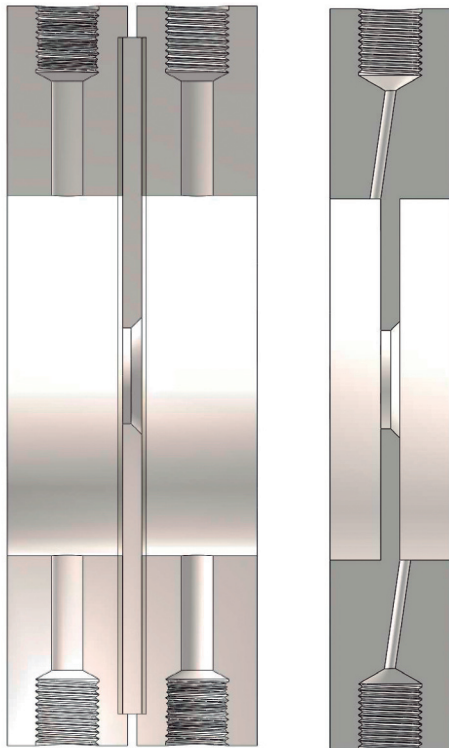
NOTES

- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.

FLOW

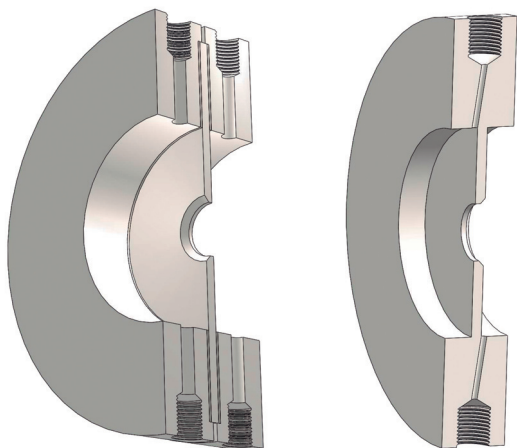
Integrated Orifice plate with pressure taps

DESCRIPTION: Differential pressure flow measurement is widely used due to its excellent relationship between installation costs, maintenance and performance. The new characteristics of differential pressure transmitters, increasingly precise and capable of integrating a greater number of process variables, confirm the validity of this type of meter.



RINGS

INTEGRAL



APPLICATIONS

- Flow measurement in clean liquids, gases and low-pressure steam.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

- Calculation standards:	ISO 5167-2 ASME MFC-3M
- Materials:	Carbon Steel, stainless Steel and high alloys (other materials on request).
- Size of Manufacture:	2" – 40"
- Flange finishes:	RF, FF, RTJ.

SPECIFICATIONS

- Beta:	0.1 - 0.75
- Reynolds:	≥ 5000 y $\geq 170\beta^2 D$
- Accuracy:	1 - 2%

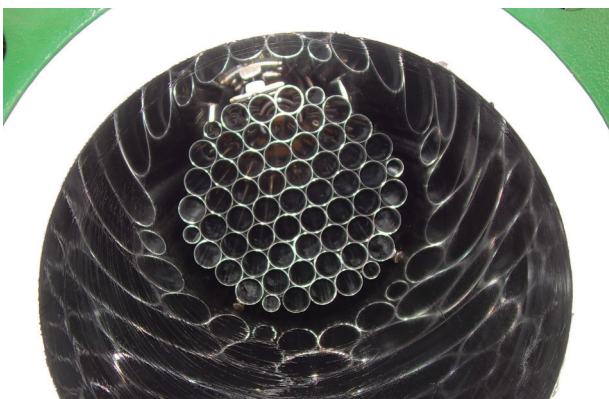
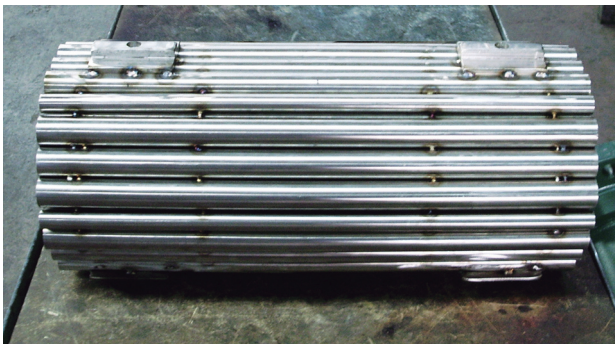
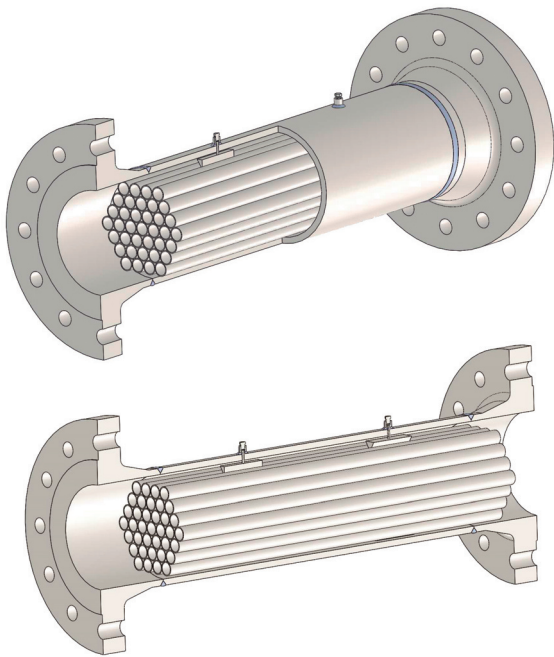
NOTES

- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.

FLOW

Flow conditioner

DESCRIPTION: They are generally used in installations where, for flow measurement, there is not enough length of straight section of pipe to eliminate existing turbulence in the process fluid.



APPLICATIONS

- Liquid and gas.
- For all types of industrial plants such as:
 - Energy generation.
 - Chemical and petrochemical industries.
 - Renewable energy.
 - Food industry.
 - Water treatment.

DESIGN

- Calculation standards:	Miller Engineering Handbook / ISO / ASME
- Materials:	Carbon Steel, low alloys and high alloys.
- Size of Manufacture:	1/2" – 40"
- Flange finishes:	Butt weld, Flanged RF, FF, RTJ.

SPECIFICATIONS

- Beta:	-
- Reynolds:	-
- Accuracy:	-

NOTES

- **Maximum operating temperature:** According to the rating of the flanges, pipe thickness and materials used.
- **Maximum operating pressure:** According to the flange rating, pipe thickness and materials used.





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