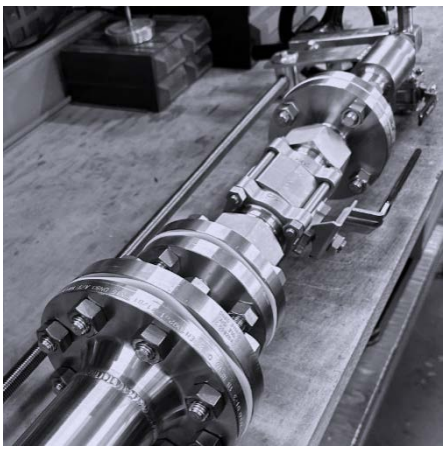
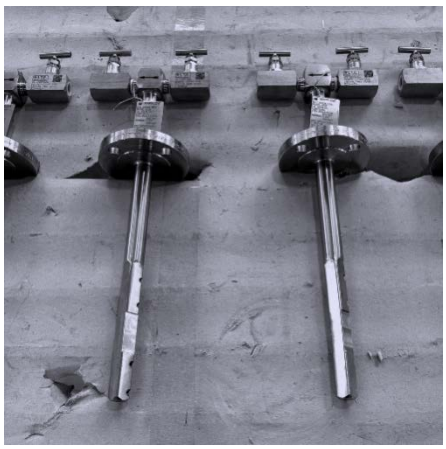
MULTIPORT AVERAGING PITOT TUBES

The Multiport Averaging Pitot Tube (Mapflow) is a differential pressure device suitable to measure the flow rate in a closed conduit for general applications (it is a general purpose and affordable device). Normally used in big pipes with low flow

TECHNICAL SPECIFICATIONS

APPLICATIONS	Oil & Gas / Petrochemical Industries / Power Stations
TYPE OF ELEMENTS	Standard Model ED-20/21: Diamond Shape-Manufactured by Square Bar 20x20 mm Standard Model ED-45/46: Diamond Shape-Manufactured by Square Bar 45x45 mm Special Device: Diamond Shape-Manufactured by Square Bar sized with Stress and Vibrations Analysis Results. R Model is Round shaped other than Diamond.
MATERIAL	As per Customer's requirements / Main material References: ASME/ASTM
PROCESS CONNECTIONS	Threaded Coupling / Flanged Nozzle





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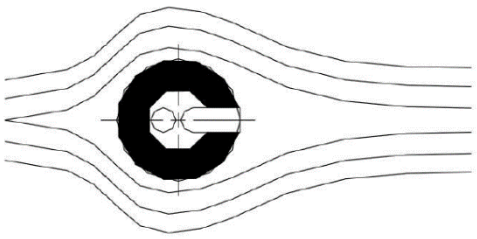
Sales, Administration & Manufacturing Office: Via Gramsci 1 - 26827 Terranova dei Passerini (LO), ITALY
Head Office: Via Rosso Medardo 16 - 20159 MILANO, ITALY
Phone: +39 0377 911066 - VAT IT-11535970963

Mod DS-MAP ED08-25

STANDARD LIMITS & APPLICATION FIELDS	
DIMENSIONS	Up to 100” and over
REYNOLDS NUMBER RANGE	Over 200.000
FLOW CALCULATION	Main Reference code: ISO 5167 ASME MFC-3M / Other standards: ANSI 2630 /AGA-3/API Ch.14 (1992)/Miller-Spinks-Shell Engineering Handbook.
PERFORMANCES	Accuracy (referred to flow coefficient): 2÷2.5% for Standard Device; to be evaluated case by case for Special Devices Repeatability: +/- 0.15% Max PPL 10÷15% of full-scale differential pressure
FLOW CALCULATION	Main Reference code: TECNOMATIC STANDARD
NOTES	Flow Meter can be manufactured according to all Customer Specifications. Flow Meter can be supplied with all suitable accessories (valves / manifold / condensing pot /transmitter / fitting /tubing).
MODELS AND PRECISION	The flow coefficient of the Averaging Pitot remains stable for a long time. The Averaging Pitot is more precise than an orifice plate in the long term. To each variation of the flow coefficient “K” a reduced accuracy can be expected. In the same interval of time (long enough), we find a flow coefficient K almost constant, the same coefficient K taken in a diaphragm orifice meter can change of about 10%, that gives a result of 10% of error in the reading of the flow. The accuracy of the diaphragm orifice meter, in the long term, it is also subjected to damages due to solids in suspension and/or formations of dirt or fat. These factors give as result an increase of the coefficient of flow “K”, that takes the initial uncertainty from the 1% to 10%÷20%.

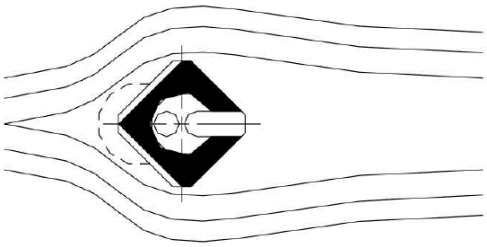
ROUND SHAPE

Accuracy: ± 1,5% of the actual value of the flow. Repeatability: ± 0,1% of the actual value of the flow Round shape probe produces a flow nearly uniform around to the body allowing a good precision in the measure of the differential pressure. This type of sensor has been used with success with fluid like water, air and exhaust gases at low pressure also where those that transport sediments and where there are no demands for tax measures.



DIAMOND SHAPE

Accuracy: ± 1% of the actual flow rate. Repeatability: ± 0.1% of the actual flow rate. The sensor, with its diamond-shaped cross-section, produces a uniform, vortex-free flow around the body, allowing for excellent precision in differential pressure measurement. This type of sensor is successfully used for all flow measurement applications requiring high accuracy.



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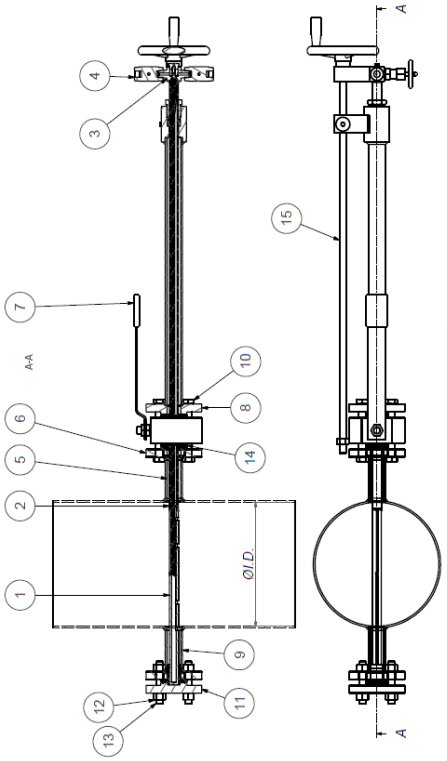
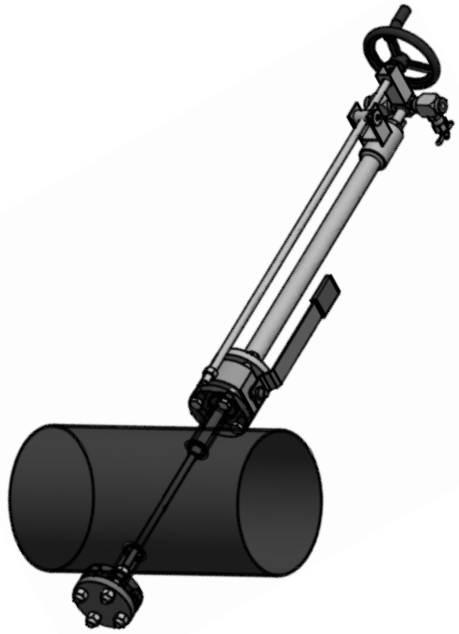
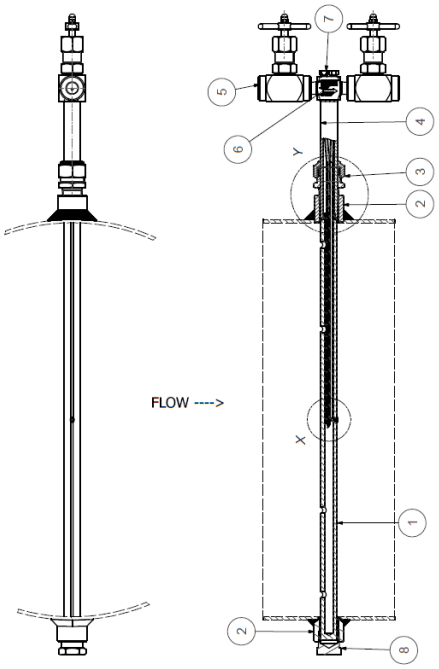
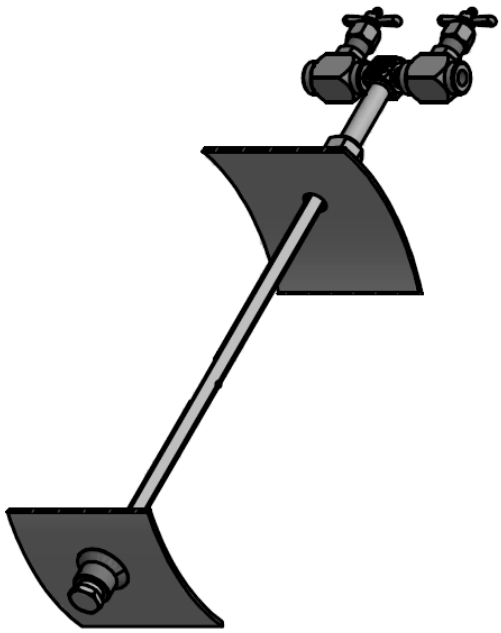
SAMPLE OF MAPFLOW MOD ED21





SAMPLE OF MAPFLOW MOD R21





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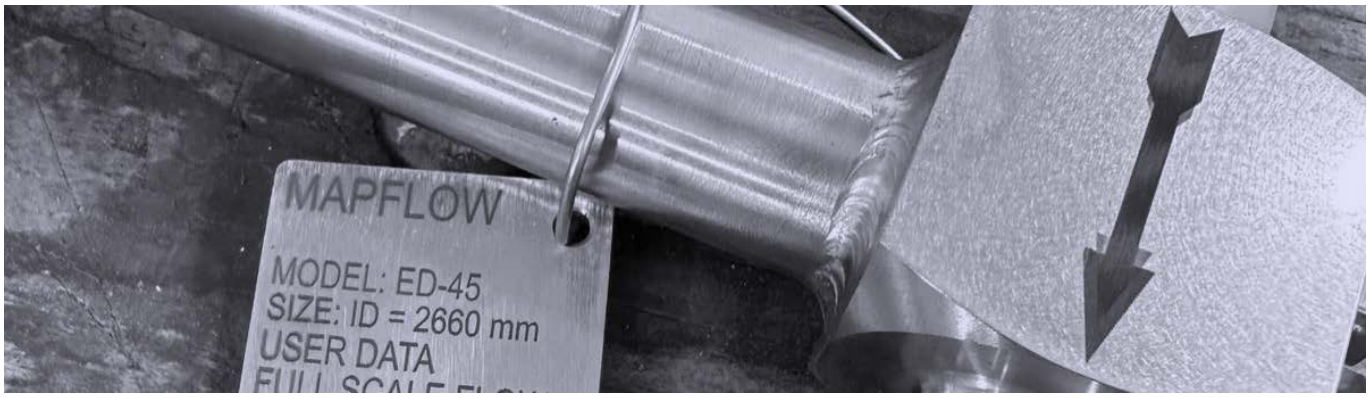
WORKING PRINCIPLE	The primary device of measurement more advanced for liquid, gas and steam. The Averaging Pitot is a primary instrument of measure, designed to produce a differential pressure, proportional to the flow. Based on the theorem of Bernoulli, the four upstream holes take the velocity of the flow in four different points of the pipe (taking an 'average' value), the downstream hole measures the static pressure. The differential pressure that follows is proportional to the flow. The Averaging Pitot measures liquids gas and steam flow in pipes or rectangular ducts accurately. Available for lines from DN 2". Also available in many different models, each specifically designed for various applications in the measurement of the flow.
SPECIAL REQUIREMENTS	Tecnomatic offers 'in-house' testing including dye penetrant inspection, leak pressure testing, radiographic inspection, magnetic particle inspection, ultrasonic inspection and Positive Material Identification PMI. ASME IX/EN 15614 welding procedures and qualifications involving standard and special materials are also available. Finishing of devices with standard painting cycles or as per customer requests.
EXTRA	All Type of Pitot Tubes can be supplied with End Support and Retractable System.



EXAMPLE OF CODIFICATION

MAPFLOW → MAP | D | 20 | ED21 | 02 | 05 | 01 | 001 ← **ID NUMBER**

TYPE OF MAPFLOW:
R – ROUND SHAPE
D – DIAMOND SHAPE

END SUPPORT:
01 – YES
02 – NO

PIPE SIZE:
02 - 2 INCH
03 - 3 INCHES
...
90 - 90 INCHES

TYPE OF PROBE:
ED20/21 – SQUARE 20X20
ED45/46 – SQUARE 45X45
R21 – ROUND Ø20
R46 – ROUND Ø45

RETRACTABLE SYSTEM:
01 – YES
02 – NO

MATERIAL:
04 – SS 316
06 – INCONEL ALLOY
07 – MONEL ALLOY
08 – HASTELLOY

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